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JULIUS OTTO SCHLOTTERBECK, Ph.C., Ph.D.

1865 – 1917

President of the American Conference of Pharmaceutical Faculties 1910 – 1912

"Ability, loyalty, faith and vision were the outstanding traits of Dr. Schlotterbeck's character. These he defined in his daily work, he lived them and inspired others to live them. Through his loyalty, vision and ability he made better men and women—and better pharmacists by his faith in man and in pharmacy."

J. O. SCHLOTTERBECK

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. VI JULY, 1917 NO. 7

J. O. SCHLOTTERBECK.

Julius O. Schlotterbeck was born in Ann Arbor, Michigan, on September 1, 1865. Both his parents were Germans. He received his primary education in the grade schools of Ann Arbor and for several years worked in John Moore's drug store on Huron Street.

In 1885 Mr. Schlotterbeck entered the School of Pharmacy of the University from which he graduated in 1887, receiving the degree of Pharmaceutical Chemist —the only degree that was given at that time. During 1887–1888 he was in charge of the Eagle Pharmacy, 1924 Carson Street, Pittsburgh, Pa. In the Fall of 1888 he returned to the University of Michigan as Assistant in Pharmacy and in charge of Pharmacognosy, at the same time pursuing studies in the College of Literature, Science and the Arts from which he graduated in 1891, receiving the degree of Bachelor of Science in Chemistry.

From 1892 to 1895 he was instructor in Pharmacognosy and Botany. The following year he studied at the University of Berne, Switzerland, where he received the degree of Doctor of Philosophy. The major portion of his work here was under Professor A. Tschirch, who recognized his unusual ability. The friendship thus formed continued to the end. On returning to Ann Arbor in 1896, he was made Assistant Professor of Pharmacognosy; he was advanced to the rank of Junior Professor in 1904, and, on the death of Dr. Prescott in 1905, was made Dean of the College of Pharmacy. He was granted a leave of absence for two years, from October 1, 1912 to October 1, 1914, to establish an experimental laboratory for the J. Hungerford Smith Company, Rochester, N. Y. After returning to the University he retained his connection with the above firm in an advisory capacity.

Last September, while attending a meeting in New York, Dr. Schlotterbeck was taken with severe pain which was relieved. But early in December he had a second attack and was taken to the hospital where he remained only a few days. He then stated that with proper food no further trouble was expected. However, early in January it was necessary for him to go to the hospital again. After several weeks he was taken home where he gradually failed until the end came, June 1.

Dr. Schlotterbeck was deeply interested in everything pertaining to the elevation of pharmacy and was, I believe, one of the best teachers of Pharmacognosy in this country. The College of Pharmacy and also pharmaceutical education has lost a valuable teacher whose place it will be hard to fill. He was Secretary of the American Conference of Pharmaceutical Faculties from 1904 to 1908, and President of the same in 1910–11 and 1911–12; member of the present Committee

for the revision of the U. S. P.; Chairman of the Scientific Section of the A. Ph. A. 1902–3; Third Vice-President; member of the Executive Committee and Chairman of Research Committee of the Flavoring Extract Manufacturers' Association.

Dr. Schlotterbeck was especially qualified for research work and has published many papers giving the results of his investigations, two of which received the Ebert prize. A complete list of his publications may be found in the "History of the Chemical Laboratory of the University of Michigan," by Edward D. Campbell.

On August 11, 1898, Dr. Schlotterbeck was married to Eda May Clark, B.L. '91, B.S. '97, of Ann Arbor, who has been a most devoted wife. He has left three children, Prescott Golder, a freshman in the University; Miriam Arda, in the high school; and Karl Theodore, eleven.

A. B. STEVENS.

To the Editor, JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

Permit me to call attention to an error in the title, and therefore also in the text, of a paper contributed by Mr. C. Verne Nichols to the June, 1917, number of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION (pp. 540–542). The paper in question is entitled, "Effect of the rays of the sun upon the formation of amygdalin in wild cherry bark," and the inaccuracy of statement to which it seems desirable that attention should be directed consists in the fact that wild cherry bark does not contain amygdalin. It was shown quite conclusively several years ago by Power and Moore (*Jour. Chem. Soc.*, London, 1909, 95, pp. 243–261), that the cyanogenetic constituent of the respective bark is laevo-mandelonitrile glucoside, $C_{14}H_{17}O_6N$, a compound which was first obtained by Emil Fischer in 1895 by the partial hydrolysis of amygdalin: $C_{20}H_{27}O_{11}N + H_2O = C_{14}H_{17}O_6N + C_6H_{12}O_6$. Its occurrence in nature was first observed by Hérissey, who, in 1907, obtained it from the young twigs of *Prunus Padus* Linné, and in 1909, as above noted, it was isolated in a pure crystalline state from the bark of *Prunus serotina* Ehrhart. The same compound was subsequently shown to be contained in the leaves of *Prunus serotina*, and it is an interesting biological fact that the occurrence of amygdalin appears to be restricted to the seed of the plant, as notably in the case of the bitter almond. The racemic form of mandelonitrile glucoside was obtained by Hérissey in 1905 from the leaves of the cherry-laurel (*Prunus Laurocerasus* Linné), and was termed "prulaurasin," whereas the dextro form, designated as "sambunigrin," was isolated by Bourquelot and Danjou in 1905 from the leaves of the common black elder (*Sambucus nigra* Linné). It follows from the above mentioned facts that the amounts of hydrocyanic acid obtained by Mr. C. Verne Nichols from wild cherry bark should be computed for a compound of the composition $C_{14}H_{17}O_6N$, and not for amygdalin.

It is to be regretted that the investigations which have here been noted do not appear as yet to have received consideration in the principal American works of reference on such subjects, and they are therefore likely to be overlooked by those to whom the periodical chemical literature may not be available.

FREDERICK B. POWER.

BUREAU OF CHEMISTRY,
U. S. DEPARTMENT OF AGRICULTURE,
WASHINGTON, D. C.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

JUSTICE TO THE PHARMACIST.

UNDER the above caption an editorial appeared in the *Journal of the American Medical Association* (June 16, 1917). In the same number a letter from Mr. J. W. England is printed in which attention is called to the standing, or no standing, of the pharmacist in the Army and that there is no provision whatever for a pharmaceutical corps in the military organization.

The editorial referred to concludes as follows:

> "To-day, as never before, victory in war goes to the nation that most effectively conserves the health of its fighting men. The physician is now of such military importance that the medical profession will be called on to make no inconsiderable sacrifices. It will materially lighten the arduous duties and responsibilities of the physician to have in the Army trained pharmacists who will be able to give intelligent coöperation. But it is imposing too great a strain on the patriotism of those whose special knowledge is obviously a large asset to the Army, to expect them to enlist as privates without any recognition of their national worth. Pharmacists should be given a rank commensurate with their importance, first because it is but simple justice to the pharmacists themselves, secondly, because the usefulness of the medical corps will be greatly augmented and, lastly, and most importance, because the efficiency of our Army demands it."

In the *Journal A. M. A.* for June 23, President Frederick J. Wulling expresses his appreciation for the timely editorial referred to, and *this* writing has as one of its objects, an acknowledgment of the consideration given and further to express pleasure and gratification for the evidence of coöperation in this endeavor on the part of the American Medical Association with the American Pharmaceutical Association.

Dr. S. Solis Cohen, in the Correspondence column of the *Journal A. M. A.* for June 23, p. 1934, endorses the editorial and letter referred to and suggests that physicians write the Medical Department of the Army in support of the movement. The following extract is taken from Dr. Cohen's letter:

> "The importance of the pharmacist as first aid to physician and surgeon ought not to require emphasis. Not only is the technical skill and knowledge of the trained pharmacist required in the procurement and preparation of medicines, antiseptic solutions and the like, but also, with but slight intensive preparation, it could be made highly useful in the hospital wards and in the clinical and research laboratories.
>
> "In order that this varied usefulness may be developed to the highest point, and thus contribute to the most efficient conduct of the war and to the best possible care of the sick and wounded, the type of men attracted to the pharmaceutic service of the Army and Navy should be high, and their merit should be adequately recognized by their commissioning as officers."

The American Medical Association at the last annual meeting, held in New York City a few weeks ago, endorsed the provision for a pharmaceutical corps in the Army, and that pharmacists in the service be given commissions.

Not only does justice demand that the professional services of pharmacists

be recognized but there is need of these services for those who enlist in the cause of their country. An anomalous condition obtains because the question of legal recognition of pharmacists by the government and every state, except in Army service, has long ago been settled. The adoption of the official standards is offered as unquestionable evidence, for only persons qualified by education and experience can use these intelligently and successfully; quite a number of states exact as prerequisite for pharmaceutical practice that persons so engaged must be graduates of colleges of pharmacy. A pharmacy law has been provided for the District of Columbia. On the other hand, enlisted men, who have had no previous pharmaceutical training, are being coached for hospital service in minor medical treatments, dispensing and preparation of medicines, etc., in a course extending over a period of three months. Colleges of pharmacy require of their students preliminary education, experience in drug stores over a period of more than three years, and not less than two years' attendance at school before a certificate of proficiency is given their students. An emergency exists; but in civic life, physicians require the services of pharmacists; why not in the Army, where the lives of many may be jeopardized? Every means of conserving health and life has a determinable value, so also the waste of talent and service is as reprehensible as waste of material.

If the present crisis had prompted the action of pharmacists then it might be considered as a selfish move, but for many years, in spite of discouragements, the American Pharmaceutical Association has continuously labored to secure justice for pharmacists, and now that there is urgent need, the efforts of the Association have been energized and supplemented. In the annual report for 1912 of the Surgeon-General to the Secretary of War, he made a strong plea for the increase and improvement of the status of the Army Hospital Corps.

Pharmacists are entitled to and should have representation on the Advisory Commission to the Committee on National Defense. The present maldistribution of functions in the Army should be corrected in justice to pharmacists, for better service of the physicians and of all enlisted in our country's cause. The best service possible is not too good for our soldiers.

> "The Nation needs all men, but it needs each man, not in the field that will most please him, *but in the endeavor that will best serve the common good.*" —From President Wilson's Proclamation.

E. G. E.

JUSTICE TO THE MEN IN THE MILITARY SERVICE DEMANDS BETTER PHARMACY.

IT must be admitted that under present conditions there is no great need for trained pharmacists in the Army; the same affirmation is applicable as an argument that the Service, as now constituted, is neither adequate nor efficient—

the pivotal points of modern warfare are science and efficiency. The soldier is entitled to the best available medical and surgical attention, and this is impossible without the best pharmaceutical service.

With the exception of England, all the more important countries engaged in the European war, prior to the entrance of the United States, provided for pharmaceutical corps in their army organizations. England is giving the matter serious consideration, while Australia has already established a pharmaceutical corps, Canada has not perfected such organization.

It must be admitted that at the battle front, compactness and portability are of greatest importance, but even here where tablets and a very limited range of medicaments can only be employed, there is need for men who have knowledge of what they are administering and dispensing. Caution, alone, is not sufficient protection against error—the resultant responsibility that develops from the knowledge of medicines is a more effective safe-guard. In the *British Pharmaceutical Journal* of June 2, 1917, occurs the following statement which is applicable: "We have already had to report several cases of fatal poisonings in military and quasi-military hospitals, in which unqualified dispensers were employed; and considering the number of pharmacists in the Army and Navy, there seems to the *mere civilian* no valid reason why their professional services should not be utilized more fully and effectively." It is fair to assume that at the front the occurrence of such accidents are far more frequent than in the hospitals, nor can the errors be as readily detected while the conflict is going on.

A liberal allowance must be made for seeming dereliction by the War Department in not taking up the matter of establishing a pharmaceutical corps, without awaiting the agitation of pharmacists and medical men. The officials must endeavor to avoid mistakes of commission as well as omission. The importance of our demands should be impressed by facts and sound arguments, and these must largely be authenticated by pharmacists with coöperation of *all* concerned in securing the best pharmaceutical service for the Army, therefore the helpfulness of medical men is of great value in asserting our claims. The points to be stressed, however, are that pharmacists must *show* the necessity for a pharmaceutical corps and outline a plan for its organization. The rendition of this assistance and information devolves on pharmacists and the sincerity of their purpose must be persistently reinforced by staying qualities; "effervescence" has no place in this important matter.

It is hardly necessary to say that the proposition is destined to failure, if no other service is to be rendered than at present, or even if additional functions or duties are to be added. Pharmacy should have first consideration in the organization of a pharmaceutical corps. The assumption of part of the work of physicians and of nurses is practicable in a degree, but within the province of pharmacy, or at least closely related, there are possibilities for chemical, clinical, biological,

dietetic, Roentgen-ray, toxicological and other scientific work—this includes, of course, soil and water analyses. There may also come the necessity for limited pharmaceutical and chemical manufacturing, aside from dispensing, and surely, knowledge of drugs and chemicals and how to properly keep them has more than economic value. Perhaps most of those who enlist would require special instruction, according to grades or rank, but such provision obtains in all divisions of the Army and Navy and is now provided for physicians and surgeons in training them for active service. Locally, Army hospitals are established and laboratories of schools of pharmacy can, if necessary, be utilized for research work, in fact, the Government has already tentatively accepted the facilities of several schools, including their drug gardens.

The statement of Chairman S. L. Hilton bears repetition: "We must work together." While the opportunities may come in a different way in different localities, success will only be achieved by "working together" and presenting an unbroken front, unswerving in our determination for a cause we know to be just, that will make possible a service, not attainable under present conditions, and reflect credit on pharmacy.

The great objective points in this movement are, to show that pharmacy has a mission, and is of invaluable service to the Army, whether on a war or peace footing; to provide a proper system for organization of a pharmaceutical corps and to effect its establishment. All sections of the American Pharmaceutical Association and also the Conference of Pharmaceutical Faculties should have papers on the subject based on these related viewpoints—not the least in importance a schedule for the organization of a pharmaceutical corps of the Army and a systematic listing of the work therein by pharmacists in the several ranks that may be provided. There is no place for day-dreams in this important project which means so much for pharmacy. The tests that should be applied are those determining the feasibility, practicability and possible efficiency of such an organization. A paper by Mr. J. W. England on the subject was read before Pennsylvania Pharmaceutical Association, and is printed in this issue of the JOURNAL.

There is at present no provision for a pharmaceutical corps in the Army and such establishment requires the favorable action of Congress. Some missionary work has been done in the furtherance of the measure. Several years ago, and at different times, bills have been on the calendar of Congress for such enactment, while they met with favor, delay for one reason or another, and perhaps opposition, resulted in failure, but now is a most opportune time. As President Wulling says, "It is the psychological moment;" at any rate the provision is needed for conserving the life and health of those enlisted in the country's cause. The consummation will require much energetic coördinated coöperative work. Are you sufficiently interested? If so, "do your bit." E. G. E.

SCIENTIFIC SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

ANALYSIS OF THE SEEDS OF GYMNOCLADUS CANADENSIS.*

(Kentucky Coffee Tree.)

BY G. N. WATSON AND L. E. SAYRE.

The Kentucky Coffee Tree grows in the section from Canada south and west to Nebraska and Kansas. It is a large tree, growing 50 to 60 feet high in the north and considerable higher in the south. In the north it is sometimes called Chicot or Stump tree. It has a rough bark, large bipinnate leaves, 2–3 feet long; 7 to 15 leaflets, ovate or acute; glabrous or pubescent on veins beneath; racemes, many flowered; seeds, hard, $^1/_2$ inch across, imbedded in a sweetish, acrid and somewhat mucilaginous pulp.

A few cases of poisoning have been reported from the eating of some part of the fruit of the Kentucky Coffee Tree. This matter was first brought to our attention in a practical way, during the past year, when a few of the seeds were sent to the laboratory from Pleasanton, Kansas, for investigation. The eating of some of these seeds was reported to have caused the death of a child in that town. It has been impossible to get the history of the case from the two attending physicians and, too, it could not be definitely learned whether the poisoning was caused from eating the seeds or the fruit-pulp, which the literature on Gymnocladus seems to indicate as being the most common source of poisoning.

An analysis of the seeds gave results as follows:

Ash	4.25%
Moisture	8.76%
Material by Acid Conversion, calculated as starch	16.00%
Sugar, by direct polarization	18.40%
Reducing sugar	None
Proteid (N × 6.25)	30.43%
Fixed oil	20.12%
Wax and resinous matter	2.10%

An examination of the oil showed constants as follows:

Saponification Value	195.09
Iodine Number	135.21
Refractive Index at 20° C	1.4750

Color, bright yellow; taste, bland.

The constants of this fixed oil show a high saponification value and a comparatively low iodine number and run nearly parallel with those for Devil's Claw and Walnut oils.

Qualitative examination of the seeds indicate the presence of saponin and a toxalbumin, similar, if not identical, with that of ricin, the poisonous principle found in the castor bean.

It is a well-known fact that the roasted seeds of Gymnocladus are often eaten by children with impunity and no cases of poisoning have been reported, except where the raw seeds were eaten; the poisonous principle, evidently, having been destroyed by heating. This we know to be true of both saponins and toxalbumins.

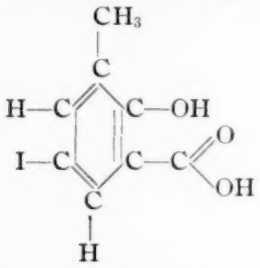
* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

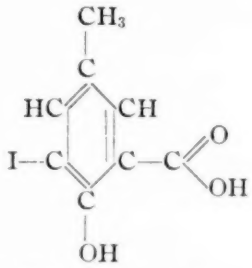
IODIZATION OF *o*- AND *p*-CRESOTINIC ACID.*

BY J. A. W. LUCK.

o-Cresotinic acid or 2-oxy-1-methyl-3-carboxyl-benzene and *p*-cresotinic acid or 4-oxy-1-methyl-3-carboxyl-benzene,[1] according to the Crum-Brown-Gibson rule, yield by direct iodization only mono-iodine derivatives. The directive influence of the hydroxyl group causes the introduction of iodine into the ortho and para position. The methyl group also influences the introduction of the iodine in the same manner, while the carboxyl directs the iodization to the meta position.

Since the ortho positions to the hydroxyl group are both occupied in the *o*-cresotinic acid, and since the combined directive influence of the hydroxyl and carboxyl groups outweigh the influence of the methyl group, substitution of iodine will only occur in the 5-position, methyl being 1, which is para to the hydroxyl and meta to the carboxyl group. Similarly, *p*-cresotinic acid will yield only 5-substitution of iodine, which is ortho to the hydroxyl and meta to the carboxyl groups. The configurations therefore are:





As shown by Kekulé,[2] the reaction between iodine and a carbon compound is a reversible one which may be expressed by

$$AH + I_2 \rightleftarrows AI + HI,$$

where A is a radicle. To bring the reaction to completion it is therefore necessary to remove the hydriodic acid as fast as it is formed. This can be accomplished by oxidizing the hydriodic acid to I_2 and H_2O. This method has been extensively used to iodize ring compounds which are not attacked by oxidizing agents. Kekulé[3] used I_2 and HIO_3 to obtain phenyl iodide from benzene. Heating with concentrated H_2SO_4 and I_2 was used by Neuman[4] to obtain the same substance. Terephthalic acid was iodized by Rupp,[5] using fuming H_2SO_4 and I_2, obtaining a mixture of tetra-iodo terephthalic acid and hexa-iodo benzene. Joraslawzew[6] used $Na_2S_2O_8$ and I_2 to iodize benzene and its homologues.

The removal of the hydriodic acid in the form of metallic iodides has been extensively used in the iodization of hydroxy benzene derivatives. Messinger and Vortman,[7] Kalle & Company,[8] used a solution of I_2 in KI, which was added

* Contribution from the Chemical Laboratory of the University of California.

[1] M. M. Richter Verz.

[2] A. 131–122.

[3] A. 137–162.

[4] A. 241–84.

[5] B. 29–1631.

[6] Giessen Thesis, 1914.

[7] B. 22, 2312, 1889.

[8] D. R. P. 106504.

to an alkaline solution of phenol, cresol, etc., which, upon acidification, yielded tri-iodo derivatives. Classen and Loeb[9] used a borax solution of phenolphthalein obtaining tetra-iodophenolphthalein. This method has been used to detect benzoic acid in salicylic acid, the benzoic acid yielding no iodine derivative under these conditions. Haase[10] treated an alkaline solution of *o*-cresotinic acid with a slightly less quantity than molal iodine dissolved in KI solution, and precipitated with a mineral acid. He obtained a mono-iodo derivative having a M. P. 204° C. This is listed by Stelzner[11] as 5-iodo-2-oxy-1-methyl-3-carboxylbenzene. By using this method, the writer obtained an iodine derivative having a M. P. 237° C.

Oxides of the heavy metals PbO, HgO have also been used. Weselsky[12] dissolved salicylic acid in 90 percent alcohol, heated under reflux condenser and added small portions of I_2 and HgO, obtaining di-iodo salicylic acid,

$$2ArH + 2I_2 + HgO \longrightarrow 2ArI + H_2O + HgI_2.$$

The constitution of the iodine derivatives may be determined by replacing the iodine by other groups, forming compounds whose constitutions are known. Of the halogens both Br and Cl have been replaced by NO_2, by treating the halogen derivatives dissolved in glacial acetic acid with $NaNO_2$, see Zincke.[13] In a similar manner, I can be replaced by NO_2.

$$ArI + N_2O_3 \longrightarrow ArNO_2 + {}^1/_2I_2 + NO.$$

By fusing the iodine derivatives with KOH or NaOH replacement of I by OH occurs. The procedure depends upon the stability of the substance used. The iodo cresotinic acids resinify readily upon heating with alkali. This can be partially prevented by fusing at low temperatures and the addition of PbO or $Pb(OH)_2$ freshly prepared.

During the fusion oxidation of side chains frequently occurs, Barth.[14] This is accelerated by the presence of MnO_2, CuO, Fe_2O_3, Oppenheim & Plaff,[15] Koenig & Heyman.[16] Ag_2O behaves similarly, the methyl group being oxidized to COOH yielding derivatives of isophthalic acid from cresotinic acid. This is expressed in the simplest manner by the equation

$$ArCH_3 + 3Ag_2O \longrightarrow ArCOOH + H_2O + 6Ag.$$

EXPERIMENTAL.

(1) *o-Cresotinic Acid.*—Dissolve 6 Gm. of *o*-cresotinic acid in 100 Cc. of 95 percent alcohol, add 10 Gm. of I_2 and heat to boiling under reflux condenser, gradually add in small quantities of 4.3 Gm. HgO, vigorously rotating flask after each addition. Soon after the last portion of HgO has been added the liquid has a pale yellow color, the HgO combines with the HI liberated, forming HgI_2. The total time is from 20 to 30 minutes. Filter the liquid into a solution of KI, to remove the HgI_2 which is slightly soluble in alcohol; wash the HgI_2 on the filter paper

[9] B. 28, 1609, 1895.
[10] D. R. P. 224536 C. 1902 (2) 700.
[11] *Verz. Org. Verb.*, 1910–11, page 437.
[12] A. 174–103.
[13] Jp. (2) 61, 564, 1900, compare Rayford & Heyl, *A. Chem. J.*, 43, 393.
[14] A. 154–360.
[15] B. 8, 887.
[16] B. 19, 704.

with alcohol and dilute the solution with water, bringing the total volume to 500 Cc. Filter on suction pump. Redissolve the precipitate in hot alcohol and dilute with boiling H_2O to twice the volume. Upon cooling the iodized cresotinic acid crystallizes in long, shining needles. Recrystallize from dilute alcohol. Yield, 90 percent of theory.

Faintly yellow, long, shining needles sublime at 140° C., without decomposition. Soluble in alcohol, acetone, ether, chloroform, hot glacial acetic acid; slightly soluble in H_2O. M. P. 237° C. with decomposition, losing iodine at 225° C. The alcoholic and aqueous solutions give with $FeCl_3$ solution a violet color. The analysis for iodine by Pringsheim's method, Weyl,[17] Lassar-Cohn,[18] yielded:

I found: 46.04 percent I theory: 45.66 percent

(2) *Ethyl Ester.*—2 Gm. of the iodized acid were dissolved in 100 Cc. absolute alcohol, adding 20 Cc. H_2SO_4 and heated on water bath under reflux condenser for three hours. Pour into cold water, cool and filter. Recrystallize from alcohol. Short needles. M. P. 78° C. Soluble in NaOH solution. Nearly insoluble in solution of sodium carbonate.

I found: 41.2 percent I theoretical: 41.48 percent

(3) *Nitro Derivative.*—Dissolve 5 Gm. of iodized cresotinic acid in 50 Cc. glacial acetic acid by heating on the water bath; add 2.5 Gm. of solid $NaNO_2$. When reaction subsides pour into cold H_2O and let cool. Filter, to filtrate add 10 Cc. 6 *N* NaOH followed by H_2SO_4; a solution of Na_2SO_4 will do as well; filter and dissolve the two crystallized nitro acids in a 1 *N* NaOH solution. Dilute to twice the volume and add a solution of 3 percent H_2O_2 to oxidize nitroso derivatives. Heated to boiling, the solution becomes faintly yellow. Let cool and acidify with H_2SO_4, recrystallize from dilute alcohol. M. P. 198° C. Long, faintly yellow needles; soluble in alcohol, ether, and slightly soluble in water. The aqueous and alcoholic solutions give a cherry-red color with $FeCl_3$ solution. Einhorn & Phyl[19] nitrated *o*-cresotinic acid and obtained a nitro derivative M. P. 199° C.; see Kostanecki and Niementowski.[20] Borshe and Beckhout[21] condensed 5-nitro-2-oxy-1-methylbenzene with formaldehyde in the presence of H_2SO_4. The condensation product upon hydrolysis yielded 5-nitro-2-oxy-1-methyl-3-carboxylbenzene. M. P. 199° C.

(4) *Replacement of I by OH.*—5 Gm. of the iodized cresotinic acid and 50 Gm. KOH were fused in a silver evaporating dish at 175° C. and kept at this temperature for two hours. After cooling the melt was dissolved in cold water, acidified with H_2SO_4, and cooling the liquid carefully so that the temperature did not rise above 20° C. Let stand for six hours and filter. Extracting the filtrate with ether, the ethereal solution upon evaporation yielded a brown mass. The brown mass was dissolved in hot alcohol, diluted with an equal volume of water and filtered. Heating this solution on the water bath, until nearly all the alcohol had evaporated, it was cooled, filtered, and extracted with ether. The residue from the ether extract gave by heating a white sublimate melting at 123° C. The

[17] Vol. 1, page 52.
[18] Vol. 1, page 325.
[19] A. 311–47–48.
[20] B. 18, 254.
[21] A. 311–47–48.

aqueous solution of this sublimate gives with $FeCl_3$ a brown-red color. It dissolves in a solution of NaOH with a green color which turns brown when exposed to air. Toluhydrochinon melts at 124° C. and behaves similarly.

(5) 5 Gm. of the acid dissolved in 150 Cc. of 6 *N* KOH solution and evaporated in a silver evaporating dish until the temperature reached 135° C. After maintaining the temperature of the melt between 135° and 140° C. for three hours, it was cooled and treated as previously described. The residue of the ether extract was dissolved in alcohol and diluted with water, evaporated to half the volume on the water bath and cooled in a freezing mixture. The solution was filtered and extracted with ether. After the ether had evaporated, a yellow crystalline mass of indefinite melting point was obtained. By repeating this three times a white crystalline substance was obtained, which was recrystallized from a mixture of ether and alcohol. White needles, M. P. 215° C. The alcoholic solution gives a blue color with $FeCl_3$ which turns green upon further addition of $FeCl_3$. The analysis for carbon and hydrogen gave:

Found: C, 57.5	Theoretical: 57.14
H, 4.4	$C_8H_8O_4$: 4.79

The analysis corresponds to a dioxytoluic acid,[22] 2,5-dioxy-1-methyl-3-carboxyl-benzene. M. P. 215° C., Schering.[23]

(6) Repeating the fusion but adding 15 Gm. freshly precipitated $Pb(OH)_2$ to the fused mass at 135° C., and observing conditions as described under (5). Less resin is formed and a larger yield of dioxytoluic acid is obtained. This acid can be readily separated from toluhydrochinon and *o*-cresotinic acid by heating on a hot plate at 110° C. Toluhydrochinon and *o*-cresotinic acid sublime. No decomposition of the dioxytoluic acid occurs at this temperature. When using Ag_2O instead of $Pb(OH)_2$, three substances were obtained with melting points at 163° C., 215° C., and 238° C., respectively. *o*-Cresotinic acid melts at 163°–164° C. The substance melting at 215° C. behaves as previously described and yielded on combustion:

Found: C, 56.94 percent	Theoretical: C, 57.14 percent
H, 4.84 percent	$C_8H_8O_4$: H, 4.79 percent

The substance melting at 238° C. gives in alcoholic solution a red color with $FeCl_3$; this is characteristic of oxyisophthalic acids. Analysis for carbon and hydrogen:

Found: C, 52.76 percent	Theoretical: C, 52.73 percent
H, 3.8 percent	$C_8H_6O_5$: H, 3.32 percent

An acid melting at 239° C. having a composition $C_8H_6O_5$ is listed as 2-oxy-1,3-dicarboxyl-benzene.[24]

(7) Para-cresotinic acid was iodized as described under ortho-cresotinic acid. The acid crystallizes in long, shining needles. M. P. 210° C.; loses iodine at 203° C. Soluble in alcohol, ether, acetone, chloroform, glacial acetic acid and slightly soluble in H_2O. The alcoholic solution gives a violet-blue color with $FeCl_3$, which is changed by traces of OH^- to a purple color. Analysis for iodine gave:

I found: 45.71 percent	I theoretical: 45.66 percent

[22] Beilstein, II, 1033.

[23] D. R. P. 81297.

[24] Beilstein, II, 1936.

(8) *Ethyl Ester.*—Preparation as under ortho. Crystallizes from alcohol in small plates. M. P. 94° C.

Analysis for iodine:

I found: 41.43 percent — I theoretical: 41.48 percent

(9) *Replacement by NO_2.*—By method described under (3). It crystallizes from dilute alcohol in long, yellow needles. M. P. 174° C. Gives in alcoholic or aqueous solution a cherry-red color with $FeCl_3$. Einhorn and Pfyl[25] obtained an acid melting at 175° C. by nitrating *p*-cresotinic acid.

(10) *Replacement by OH.*—Fusing in presence of $Pb(OH)_2$ and following directions as described under *o*-cresotinic acid, an acid crystallizing in needles and melting at 204° C. was isolated. The alcoholic solution of this acid gives a blue color with $FeCl_3$ which turns green on further addition of $FeCl_3$. The analysis for carbon and hydrogen yielded:

Found: C, 57.08 percent; H, 4.85 percent — Theoretical: $C_8H_8O_4$: C, 57.14 percent; H, 4.79 percent

This corresponds to a dioxytoluic acid, described in Beilstein[26] as 4,5-dioxy-1-methyl-3-carboxylbenzene, Schering.[27]

Using Ag_2O in place of $Pb(OH)_2$, two substances were isolated, one melting at 152° C. and the other at 300° C. The acid melting at 152° C. gives a violet color with $FeCl_3$. *p*-Cresotinic acid melts at 151° C. The acid melting at 300° C. gives a red color in alcoholic solution with $FeCl_3$. The analysis of carbon and hydrogen gave:

Found: C, 53.2 percent; H, 4.04 percent — Theoretical: $C_6H_6O_5$: C, 52.73 percent; H, 3.32 percent

4-Oxyisophthalic acid melts at 304° C. to 306° C.[28]

SUMMARY.

The iodine derivatives obtained by the method described are: 5-iodo-2-oxy-1-methyl-3-carboxylbenzene, M. P. 237° C. from *o*-cresotinic acid, and from *p*-cresotinic acid 5-iodo-4-oxy-1-methyl-3-carboxylbenzene; M. P. 210° C. This is proved by the conversion of the iodine into nitro and hydroxyl derivatives.

The nitro derivative made by Einhorn and Pfyl[29] by direct nitration of *p*-cresotinic acid is 5-nitro-4-oxy-1-methyl-3-carboxylbenzene.

The presence of Ag_2O in alkali fusions causes oxidation of side chains and has the tendency to prevent the replacement of the iodine by the hydroxyl group, the iodine being largely replaced by hydrogen.

The ethyl ester of 5-iodo-2-oxy-1-methyl-3-carboxylbenzene melts at 78° C. and the ethyl ester of 5-iodo-4-oxy-1-methyl-3-carboxylbenzene melts at 94° C.

[25] *Loc. cit.*
[26] II*, 1031.
[27] D. R. P. 81298.
[28] Beilstein II, 1936; *Ost. Jp. Ch.*, XIV, 103.
[29] *Loc. cit.*

SECTION ON PRACTICAL PHARMACY AND DISPENSING, AMERICAN PHARMACEUTICAL ASSOCIATION

THE PHARMACOPOEIA AND NATIONAL FORMULARY REVISIONS.*

BY MRS. ST. CLAIRE RANSFORD GAY.

With the distribution of the first copies of the new United States Pharmacopoeia and National Formulary must come a sigh of relief from those who have worked so long and so hard on the revision of these books.

That there is a decided improvement in the books can not be denied and perhaps one of the points most noticeable in this respect, is the prescribed allowance for variation in strength, in certain preparations through which, even if the preparation does assay less than the official strength, it is still acceptable as long as it comes within the prescribed deviation. This is a wise and just decision and was made no doubt to give the pharmacist the same opportunity to escape punishment, as is enjoyed by the manufacturing chemist, who through the kindness of the chemical rubric may market a product, not perfect (but which, with a little more expense, might have been made so), yet in spite of the variation it is immune from the law. It was time for this change and its value is appreciable.

Another point which is impressive is the great decision in the wording of the tests. This is one of the most important parts of the book, and should not allow any indecision on the part of the chemist applying any of them. The book thus becomes a standard and may be considered an authority instead of being discarded as has been frequently done, when any delicate work was being carried on.

The question of deletions and additions will be, of course, always a matter of individual opinion, and no doubt this, as well as the controversy over the word cubic centimeter, helps to delay the publication of the book.

It is not probable, though, that any of the omissions made by the committee will seriously affect the doctor, or the pharmacist, and if your pet preparation has been discarded, and another one substituted for it, the cheering thought comes in the fact that this is the day of the "five-drug" doctor, and you can easily make him see the folly of prescribing something which, not being official, is liable to be different everywhere it is bought. Among the commendable additions are the instructions on sterilization. These are concise enough to form a part of the every-day régime of even the department drug store, but, no doubt, simple as they are, will be discarded by many, except upon the visit of the inspector.

Transferring U. S. P. preparations to the N. F. makes no material difference, as they are still official, and, outside of the ordinary confusion experienced in such cases, will in no way disturb anyone. It is only reasonable to suppose, however, that, as it has taken the savants six years to make the book, that the pharmacist will be given a reasonable length of time, in which to become acquainted with all of the many wonderful changes, improvements and additions that have become official, before being punished for his ignorance. Perhaps the thing that has made this book famous, is the time that has been consumed in its revision, and while it seems ungrateful to touch on this point, after all the gratuitous labor expended

* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City meeting, 1916.

by the workers, it is just upon this point of gratuity, that a word should be said, and for which a reward should be made to those who have sacrificed time and care to the compilation of the books.

Therefore the subject resolves itself to a question of economics. Is the United States Pharmacopoeia of a commercial as well as scientific value to the United States Government? Undoubtedly yes, then as with everything else that the government considers of value, it should be paid for by the government, in proportion to its intrinsic value, and the men that give their time and brain-work to the making of these books, should be paid by the government, a salary that would permit them to devote all of their time to the work in hand, have a suitable library, an up-to-date laboratory and every facility that would permit the publication of the book in sections, so that the pharmacist, and the government as well, would not be deluged with the entire new book at the end of six years, and then have in hand a mass of material that the wholesaler has discarded as *passé*. It is safe to say that forty percent of the pharmacists do not know all of the changes of the last U. S. P. Why? Simply because their particular work was limited to a few things in the book, but if the U. S. P. had been given to them in sections, there is no doubt that as a news item, either in a journal, or in a government pamphlet, it would have been read by degrees, digested and given a practical tryout at the time of publication, and when the entire book had been published in this way, it would have been no surprise to the pharmacist at large, but simply a compilation of official facts.

To be honest, is it logical for the pharmacist to have to learn in a few months what it took four or six years to compile, and is it really worth while when the book is official in this case only four years after publication? It is not and would not be the case, if ideal, or even reasonable conditions prevailed for its publication. There is sure to be a movement in the matter of government direction, if not ownership, in the near future, and the man nearest at hand in Washington will be the one chosen to direct this work, regardless of his fitness for the position, or the sentiment of the pharmacists at large. Would it not be more dignified, then, to ask that a department of pharmacy be established by the government, the men to be selected from the various pharmaceutical societies, a proper laboratory be given to them, a decent salary be paid to them and make it worth while to give their undivided attention to the compilation of the books? From a commercial point of view, it is entirely rational, and from a scientific point, it would be the culmination of the dreams of every theorist, who wished to make practical those dreams, which under the present conditions must always remain theoretical fancies. And, after all, it is only through the dreams of yesterday that we have the facts of to-day, and if we can only make enough of these theories scientifically accurate, we shall soon restore pharmacy to the rank of a profession and remove the present stigma of pure commercialism.

ABSTRACT OF DISCUSSIONS.

OTTO RAUBENHEIMER: Six years is entirely too long to wait for the Pharmacopoeia; but it was not too long this time, because the work had to be done carefully, to be carried on by correspondence, and to be verified. Every test in the Pharmacopoeia has been verified. Every formula has been proven and the preparations are in possession of the committee.

E. F. COOK: The question of whether we should have a laboratory where this work can be done or whether it should be done through a large committee, and one more experienced is

open for debate and will be discussed for many years until it is finally settled. The point that I wish to bring out is, that although when we met in conference a great deal of work was accomplished, this would have been impossible if there had not been two or three years of previous work done, in which the experimental data were gathered and the preparations tested.

C. H. LAWALL: The conference, after all, is merely the clearing house at which to settle many points; but the conference itself would not help, unless the preliminary work were done. I have had more intimate association with the work on inorganic chemistry than with any other part of the work of the committee. In that connection there was not a test, description, or paragraph of the Pharmacopoeia that was not verified under my supervision, and also by correspondence with other members of the committee. Chemistry is not an infallible science, because it is practiced by persons who are liable to variations in their methods of working. We have tried to expedite the work as much as possible and use every care. The long time elapsing has been largely due to the fact that most of us had to work at times convenient to us, apart from our ordinary vocation.

L. F. KEBLER: There is no question that the conference is the place where a final decision should be reached. I have also thought of the possibility of the government's taking hold of the Pharmacopoeia. I am not so enthusiastic as I was ten years ago, however.

It is very important to sift every point, and scrutinize every word and every mark of punctuation. Another thing—the Pharmacopoeia should be unified. One part should not controvert another. This is a book for court work; and when it comes to a standard to be considered in court, it is absolutely necessary that the standard be inflexible. Some courts will construe it to a nicety, and not make any deviation—even though it works a hardship.

H. V. ARNY: I believe that eventually the actual work of revision will be carried out in the National Capitol. There will be found the real workers and the real laboratory. Behind them we must have the Board of Directors, who will be the experts, the men in the laboratories throughout the country. If the routine work were done in the central bureau, and this Board of Directors had the final decision, I think the problem of revision would be solved.

JOHN M. FRANCIS: There has been a note of pessimism in the words of some of those who have spoken. The Pharmacopoeia is a child of our own, a very considerable number of the auditors present have had something to do with the revision of it; so it is ours, and we feel that we can refer very frankly to its limitations and failures. I do not, however, approve of this note of pessimism that seems to have crept into the discussions. The value and efficiency of work of this kind should be judged, not from the viewpoint of theory, from the standpoint of idealism, but from the practical standpoint of what it accomplishes. To illustrate what I have in mind, I would ask you to compare the last revision with similar pharmacopoeias developed in European countries. We all respect the work of European scientists, but I should like to ask whether there is an educated pharmacist in the United States to-day, who would be willing to substitute the pharmacopoeia of any other civilized country for the one that has been in force here, or for the one that is coming out. Our present Pharmacopoeia will be generally accepted throughout the world as being superior to any other. There is hardly any science or art in the world so complex as that of medicine and pharmacy. There is not a physician in the United States to-day, who can infallibly diagnose all cases of disease. Medicine has a wonderful amount to accomplish before it reaches the stage where it can be pronounced exact or infallible. The same is true of the art of pharmacy. I believe that the Pharmacopoeia should continue to be revised in the future, as it has been revised in the past, because it has gained the hardy admiration of everyone associated with the manufacturing and purveying of medicine. Among manufacturers, I include the man in the corner drug store. I maintain that the Pharmacopoeia is not a work of law. It is not a book of standards by which the pharmacist shall be judged and, perhaps, hailed into court. It is a splendid thing that it should serve this purpose to some extent; but I maintain that it is a book that is mainly intended for the guidance of the pharmacist in the manufacture and dispensing of remedies, and not to serve as a legal code.

MRS. GAY: I am sorry that I have been somewhat misunderstood. With regard to verification of the tests, I did not mean to insinuate that the tests as given in the Pharmacopoeia were not verified. That would be absolutely foolish; but some of them are not accurate. Prof. LaWall brought out that fact, and also the point that the revisers could not be expected to give their time if it encroached on their daily work. Now the government is making use of the brains

of the country, and why does it not help to pay for the use of these brains? You would not expect to give your time as a teacher, or as a maker of chemical tests, for nothing; and I do not see why these men should not be paid a salary by the government. If the salary is adequate, they can give their undivided time and attention to this work.

SUGGESTION FOR THE TENTH REVISION OF THE U. S. P.*

BY F. B. KILMER.

The following suggestion as to method of securing a coöperative revision of the next revision of the Pharmacopoeia is offered:

That the Committee on Revision who acted for the Ninth Decennial Revision shall, in advance of the Pharmacopoeial Convention, meet and assign certain problems connected with the revision of the Pharmacopoeia to such associations and organizations as they can enlist in the work. For example, assay processes, the purity and strength of pharmacopoeial articles, to colleges of pharmacy, the American Pharmaceutical Association, chemical associations, associations of manufacturers, and other like bodies, asking them to coöperate in going over the processes and standards of the Ninth Revision, giving constructive suggestions for the Tenth Revision.

This would at once secure the active coöperation of both organizations and individuals, who, in the natural course of events, await the publication of the Pharmacopoeia, wherein they find difficulties and differences in which they would have been of assistance had they had an opportunity to work on the same, in advance. It would also give an opportunity to have the purity and strength of pharmaceutical articles tested in numerous laboratories, and by this method a vast amount of work would be done in advance of the real revision of the Pharmacopoeia.

It would seem probable that the associations above named, and others which might be listed, together with individual laboratories, would be very glad to take up portions of the Pharmacopoeia which might be assigned to them and give the Pharmacopoeial Committee the benefit of their work.

In the plan outlined it is not intended that the Pharmacopoeial Revision Committee shall assign any part of its work relating to the scope of the Pharmacopoeia and other matters which can only be worked out by the Committee on Revision by itself, and in which they need no aid.

It may be urged that the above method would in a measure be irregular and illegal. This may be met by stating that it is not intended that the work so assigned would be considered as official or binding upon the Committee of Revision, but only handed to them in concrete form for what it is worth. It may also be urged that the present Committee of Revision has not authority to make such assignment. This is true, but there is nothing to prevent it from making such an assignment, which shall be suggestive only, and the Committee of Revision of the Tenth Edition of the Pharmacopoeia will be at full liberty to use all, any part, or none of the results of the work which may be submitted to them.

It is believed that a program of this character, systematically arranged and carried out, will also have a tendency to facilitate and speed up revision work.

It is possible that a similar assignment of problems could be carried out by the Committee of Revision of the National Formulary.

*Read at the meeting of the New Jersey Pharmaceutical Association, 1917.

PAPERS READ BEFORE THE BRANCHES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

PHARMACOPOEIAS, PHARMACISTS AND PHYSICIANS.*

BY THOMAS E. SATTERTHWAITE, M.D.

In a recent article[1] I said of the Eighth Edition of our Pharmacopoeia that it failed to recognize some drugs that might be prescribed with advantage, such as adonis vernalis, much used in Switzerland; crataegus, that had been rather a popular remedy in England and Ireland; and sassy bark, or erythrophleum, which had been recommended by a British pharmaceutical conference, while, I added, it had set its seal of approval on some others which I felt should have no place in any national pharmacopoeia, giving strophanthus seeds and the tincture as instances. Since writing the article referred to, the tincture of strophanthus has been standardized by the ouabain test, but not satisfactorily, if we accept the recent verdict of a pharmacologist. (L. W. Rowe, JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 5, 1916, p. 1183.)

In the matter of improper dosage, of which I spoke, I referred in particular to that of the mixed glucoside strophanthin, the dose of which, in the Eighth Edition, was put at 1/200 grain. In the Ninth Edition it is put at 1/60 grain. In the former the dose, according to my belief, is too small; in the latter too large; *i. e.*, if the German imported strophanthin is to be used.

I also mentioned that up to that time the tincture of digitalis had not been acceptably standardized. More than this, I held that the tincture of digitalis as then used was of very varying strength; and this statement cannot be refuted. Whether it has now been acceptably standardized I do not know, for I never use it.

But I spoke favorably of some other derivatives of digitalis, no one of which was in the Eighth Edition, nor is any one of them in the Ninth Edition. I then referred and now refer to the various mixed glucosides known under the general name digitalin, some of which are used extensively both in France and Germany.

I also said that without the publications of the various manufacturing houses I could not practice medicine with any proper degree of success.

The fact is, the profession of medicine makes little use of the Pharmacopoeia. It is the official guide for the pharmacist, and is in the main reliable, so far as it tells of drugs and how their derivatives are to be obtained. But its scope is entirely too limited for the physician. If he wants guides, he finds them in dispensatories, or books on materia medica, or the publications of the manufacturing companies. From this point of view we are not as well qualified to discuss the Pharmacopoeia as pharmacists. But it does not represent to us a stable book of reference.

In making the Eighth Edition I counted 121 additions and 243 deletions, all of materia medica. Why the citrate of iron, citrate of iron and quinine, citrate of iron and strychnine, brandy, whiskey and wine of colchicum seeds have been

* Remarks made in opening a discussion on the new Pharmacopoeia, at the meeting of the New York Branch of the American Pharmaceutical Association, held at the College of Pharmacy, Columbia University, May 14, 1917.

[1] "Drug Therapy in Cardiovascular Diseases," *International Clinics*, Vol. 1, Series 26, 1916.

omitted, I do not know. I will continue to use them, and also possibly the two kinds of spirits that have been ruled out. In respect to the latter, I feel sure some others will do likewise.

I believe, however, it was quite proper to drop apocynum and convallaria; they are negligible drugs. On the other hand, hydrastine hydrochloride, the pituitary gland (posterior lobe), cotarnine hydrochloride, phenolphthalein, theobromine sodio-salicylate, emetine, hydrochloride, the sera, and physiological salt solution are excellent additions.

After a more than fifty years' practical experience as a physician with the United States Pharmacopoeias, and after not a little experience with some of the European Pharmacopoeias, I feel that I have qualified myself to speak of them with a fair degree of definiteness. Actually I have had my prescriptions filled according to the requirements of the locality, in England, France, Germany, Belgium, Austria, Switzerland, and Italy, in the course of my travels.

As the opportunity now offers, and I am speaking both to pharmacists and physicians, I wish to emphasize three points on which we should come to an understanding.

First, we need a closer fellowship. We should coöperate and fraternize. We also need to do team work. Each requires the aid of the other. There are tasks that will not be accomplished successfully, or certainly will encounter unnecessary delays, unless we unite our forces to accomplish them. I am referring now more particularly to the solution of problems that are at the moment subjects of legislative inquiry with a view to proper enactments. The problem of drug addiction is one that positively calls for our coöperation. Physicians can not solve it without the aid of drug manufacturers, and *vice versa*. In fact, in so far as the public is concerned, our county and state medical societies should, through their respective committees, meet at suitable times with accredited pharmaceutical associations, with a view to concerted action in these public matters. We should do so in the interest of the public welfare; otherwise the problems will be imperfectly handled, and the results disastrous.

My second point is that the pharmacist should be well informed technically in all the details of his business; should have the requisite pharmaceutical ability; should observe the ethical rules that should prevail between pharmacists and physicians in respect to the laity; and should be faithful to the best interests of the physician. But we on our part should also display requisite knowledge of drugs and their uses; prepare our prescriptions so that they are legible and have no incompatibles; observe the rules of ethics with pharmacists in respect to the laity; and be faithful to the best interests of the pharmacists. In other words, we should observe the same rules with pharmacists as they with us.

My third point is that we should combine in an effort to establish the ethical or first-class drug stores, as apart from the non-ethical or second-class. Or we might endeavor to establish the European *apotheken*, or pharmacies, as apart from the *drogueries*. It is fully time a positive movement was made in this direction, for two reasons: from the pharmacist's position, to sustain the dignity of the profession; from the physician's, to protect his patients from the danger of having his prescriptions improperly filled. We physicians would be greatly benefited by a plain line of distinction between the *pharmacie* and *droguerie*, such as is main-

tained in most of the countries of Europe. Let it not be inferred that I am decrying the *droguerie*. I am not. Each should have its distinct and legitimate sphere, separate from the other, each useful to the practitioner of medicine in any of its branches, and each a dignified undertaking when under the right sort of management.

DIAGNOSTICAL REAGENTS AND CLINICAL TESTS.*

BY JACOB DINER.

In the Preface to the Ninth Revision of the U. S. P. (p. 39) we find the following:

Diagnostical Reagents.—"In recent years diagnosis through the use of Chemical Reagents and Clinical Tests with or without the use of the microscope has become an important factor in determining the presence or nature of disease and in this Pharmacopoeia a chapter on Diagnostical Reagents and Tests has been appended."

Having in mind the thorough manner with which the revision of the Ninth Edition was carried out and the relative absence of error and the careful selection of all other tests applicable to U. S. P. matter, one is struck by the apparent indifference with which this particular chapter of Diagnostical Reagents has been treated.

I am basing my criticisms chiefly on the fact that some antiquated reagents and tests have been incorporated while others, more up-to-date and more satisfactory from the point of view of the laboratory worker, have been omitted.

For Blood Reaction.—The formula prescribes a 2 percent solution of guaiac in dehydrated alcohol to make 100 units. Anyone who has worked with this reagent knows that it deteriorates very rapidly and becomes useless. Nor is there any particular reason why dehydrated alcohol should be used. If one were directed to shake a piece of guaiac in U. S. P. Alcohol until a pinkish solution is obtained and to use it while fresh, positive results will be obtained in every case where blood is present.

For Diazo Reaction.—No attention is called to the fact that the Sodium Nitrite Solution will be converted into a Nitrate Solution on standing and will then give negative results in positive cases. This solution should be freshly prepared when needed, or when kept in well-stoppered bottles, removed from light, may be of service for about a month. I believe that instruction on methods of preservation in this and many other reagents would not be out of place and would materially add to the value of this chapter.

For Sugar Reactions.—The failure to mention Benedict's Solutions, both the qualitative and the quantitative, seems to me a serious omission. The former (qualitative) has all the advantages of Fehling's solution in addition to having better keeping qualities and doing away with the necessity of having two solutions, which may be incorrectly mixed (failure to add enough alkali). The quantitative solution of Benedict is equally efficient and affords a better end-point reaction.

Gastric Contents.—In view of the scarcity of potassium salts it seems to me

* Read before New York Branch, A. Ph. A., May 14, 1917.

that $\frac{N}{10}$ NaOH should at least have been included if not primarily recommended for the purpose of titration for acidity.

Alizarin Solution is used as indicator for determining all but the combined HCl, and should be included in the list.

Stains.—Gram's stain, as described in the list, is very unstable and has to be made fresh at least every week, if not oftener. The adoption of the Nicolles modification of this stain would materially aid the laboratory man, inasmuch as it is easily made and almost indestructible as far as time and exposure are concerned.

As decolorizing agents may be included:

Three percent in Alcohol for the Acid-fast stains and Acetone (1), Alcohol (3) for the Gram stain.

Why dehydrated alcohol is used in the preparation of Gram's stain as outlined on page 624 is a mystery to me. Inasmuch as this stain is supposed to be made by shaking the aniline with water, filtering the saturated aqueous aniline solution and then pouring this into a solution of dehydrated alcohol and water it appears that a corresponding amount of Alcohol U. S. P. could be used in place of the dehydrated alcohol.

Counter Stain.—Dilution of 1 : 4 of carbol fuchsin is recommended for that purpose. From practical experience I have found a dilution of 1 : 15 or 1 : 20 much more satisfactory.

In conclusion I wish to compliment the Revision Committee upon having done this pioneer work in an attempt to standardize Diagnostic Reagents and hope that subsequent revisions will eradicate the relatively unimportant errors which have crept into the present chapter on this subject, and that more of the important reagents with detailed information as to mode of preparation and preservation will be incorporated therein.

THE QUALITY OF SOME DRUGS AVAILABLE ON THE MARKET AND PURCHASED ON PRESCRIPTION, WITH METHODS OF ANALYSIS.*

BY L. F. KEBLER with the collaboration of W. O. EMERY, E. C. MERRILL, A. G. MURRAY, E. K. NELSON, S. PALKIN, B. H. ST. JOHN, G. C. SPENCER AND C. D. WRIGHT.

During the year 1912, a goodly number of samples of tincture of iodine were purchased in the open market and examined. The results[1] showed great variation from the standard. A review of the published records shows that the findings of the state officials were equally unfavorable not only for this drug but many others. Tincture of iodine is a comparatively simple drug to prepare and the element of complexity is therefore eliminated. It is held by some that tincture of iodine is a relatively unimportant drug and should therefore not form the basis of an investigation. It should be remembered that tincture of iodine has a fairly good demand, is quite frequently manufactured and is therefore relatively fresh, and on the whole is believed to serve as a good indicator of the care exercised by

* Presented in abstract before the Washington City Branch, A. Ph. A.

[1] J. A. PH. A., 2, 514, 1913; *J. Ind. Eng. Chem.*, 5, 484, 1913.

the druggist in the manufacture of his commodities. In fact, it has been observed that if carelessness exists in the manufacture of one product, it is likely to find a place in the manufacture of other commodities. It would therefore appear that whatever the underlying cause or causes may be they obtain quite generally throughout the United States.

Some time after the results on tincture of iodine referred to above were published, samples of various drugs were procured from time to time. The samples included Aromatic Spirit of Ammonia, Camphor Liniment, Lime Water, Paregoric, Soap Liniment, Spirit of Camphor, Spirit of Nitrous Ether, Tincture of Iodine and Compounded Prescriptions. The results of the investigation follow.

The work for each product examined is grouped under three headings, *viz.*, Methods of Analysis, Summary of Analysis and Comments. The methods of analysis given are either new, improvements on existing processes, or old methods tried out. In some cases it was not deemed necessary to give the method.

AROMATIC SPIRIT OF AMMONIA.

METHODS OF ANALYSIS.

Ammonium Carbonate.[2]—Introduce a suitable quantity of the sample to be examined into a burette, and guarding against loss, measure off accurately 10 mils into a 200 mil Erlenmeyer flask, containing about 50 mils of water; add an excess of $\frac{N}{2}$ sulphuric acid, boil until the carbon dioxide is expelled and the greater part of the essential oils are volatilized; cool, titrate the excess of acid with $\frac{N}{2}$ sodium hydroxide solution, using methyl red as indicator. Let (*a*) represent the number of mils of acid neutralized by the sample.

Measure off 10 mils of the sample into a 200 mil volumetric flask, containing about 100 mils of water, add 20 mils of barium chloride solution, approximately normal (10 percent), dilute to the mark with water, agitate 6 or 8 times during the next six hours and allow it to stand for 18 additional hours; filter, collecting the filtrate in an accurately graduated cylinder, guarding against loss of ammonia by evaporation. Note the volume of the filtrate, titrate with $\frac{N}{2}$ hydrochloric acid, using methyl red as indicator. From these results calculate the amount of $\frac{N}{2}$ acid necessary to neutralize the entire 200 mils (the original volume). Let (*b*) represent the number of mils of $\frac{N}{2}$ hydrochloric acid necessary.

The difference between (*a*) and (*b*) represents the ammonium carbonate. Since the acid carbonate originally present in the ammonium carbonate was neutralized by a portion of the ammonia water added, it is evident that (*b*) represents only the excess of ammonia water and the difference between (*a*) and (*b*) is the amount of acid sufficient to neutralize both the ammonium carbonate originally used and the ammonia water neutralized by the bicarbonate. The acid equivalent to the original carbonate is therefore three-fourths of the difference between (*a*) and (*b*).[3] One mil of $\frac{N}{2}$ acid is equivalent to 26.19 Mg. ammonium carbonate. If the difference between (*a*) and (*b*) is multiplied by $^3/_4$ of 26.19 (equal to 19.64) the result is the number of Mg. of ammonium carbonate in 10 mils of the sample.

Check, if desired. The precipitated barium carbonate may be washed and either titrated with a standard acid solution or dried, gently ignited at a dull red heat and weighed. From the results obtained the amount of ammonium carbonate can readily be calculated.

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[2] Unless otherwise indicated the term Ammonium Carbonate means the U. S. P. product. This work was all done previous to the issuing of the 9th Decennial Revision of the U. S. P. and the 8th Rev. therefore obtains unless otherwise noted.

[3] For details see comments on this article.

Ammonia Water.—To (*b*) add one-fourth the difference between (*a*) and (*b*). The sum is the number of mils of $\frac{N}{2}$ acid equivalent to the ammonia used as ammonia water in 10 mils of the sample. Each mil of $\frac{N}{2}$ acid is equivalent to 0.089 mil ammonia water.

Example: 10 mils of the sample of aromatic spirit of ammonia required 31.2 mils (*a*) of $\frac{N}{2}$ acid for neutralization. 184 mils of the filtrate from the barium carbonate precipitate required 13.25 mils of $\frac{N}{2}$ acid for neutralization equivalent to 14.4 (*b*) mils for the entire 200 mils. 31.2 (*a*) — 14.4 (*b*) = 16.8. 16.8 × 19.64 = 330.0 Mg. or 0.33 Gm. of ammonium carbonate per 10 mils of sample, which is equivalent to 33 Gm. of ammonium carbonate per liter. 14.4 (*b*) + 4.2 ($^1/_4$ (*a*) — (*b*)) = 18.6. 18.6 × 0.089 = 1.50 mils ammonia water per 10 mils of sample. This is equivalent to 150 mils ammonia water per liter, an excess of 67 percent.

Alcohol.[4]

Sodium Sulphate Solution: 30 grammes of U. S. P. sodium sulphate dissolved in enough water to make 45 mils. Introduce 20 mils of the sample into a separatory funnel containing 30 mils of the sodium sulphate solution, render acid by gradually adding sulphuric acid (1 in 1) with careful shaking; finally add 5 mils of the acid in excess. Remove the oils by shaking out twice with an equal volume of petroleum ether. Transfer petroleum ether into a second separatory funnel. Introduce the aqueous portion into a distilling flask. Extract the combined petroleum ether with several successive portions (5 mils) of the sodium sulphate solution; add washings to distillation flask, distil into a 50 mil volumetric flask, make up to exact volume and determine the percentage of alcohol by volume from the specific gravity in the usual manner. All measurements must be made at the same temperature. The percentage of alcohol in the original material is two and one-half times that contained in the distillate.

Summary of Analysis.—Number of samples examined, 52. Eighteen, or 35%, came within a 10% variation of the standard in ammonia content; 21, or 40%, came within 15% and 28, or 54%, came within a variation of 20%. The ammonium carbonate content varied even more.

A goodly number of the samples contain excessive amounts of ammonia water; one as much as 154%. A number of samples were found of proper strength.

Comments.—Ammonium Carbonate consists of a mixture of ammonium acid carbonate and ammonium carbamate.[5] The product therefore is not well named. Formerly it consisted of one molecule of neutral ammonium carbonate to two molecules of the acid carbonate. The composition seems to vary with the method of manufacture.[6] All calculations are made on the basis of equimolecular proportions of ammonium hydrogen carbonate and ammonium carbamate.

The object of the addition of free ammonia in the official process is to convert the insoluble bicarbonate into the carbamate. . . .[7]

E. Divers[8] reports that "By digesting crystals of the salt ("Ammonium Carbonate") with water saturated at a low temperature with ammonia gas for two or more days, at a temperature of 20° to 25°, they dissolve in apparently unlimited quantity, and are changed into ammonium carbamate."

[4] See comments on alcohol determination.

[5] U. S. P. Eighth Rev., p. 41; Schmidt, Pharm. Chem., vol. 1, 5th ed., p. 659, 1907; Roscoe and Schorlemmer, "Treatise on Chemistry," vol. 2, p. 385, 1907.

[6] Schmidt, Pharm. Chem., vol. 1, 5th ed., p. 659, 1907.

[7] U. S. Disp. p., 1171, 19th ed., 1907.

[8] *J. Chem. Soc.*, 33, 187, 1870.

On mixing ammonia gas with carbon dioxid in the absence of moisture ammonium carbamate is formed, $2NH_3 + CO_2 = NH_2CO.ONH_4$. Ammonium carbamate is quite stable in the absence of water. When mixed with water it is converted into normal ammonium carbonate but according to Macleod and Haskins[9] the change proceeds only until a condition of equilibrium is established between the ammonium carbamate and neutral ammonium carbonate as is indicated by the following equations: $NH_2CO.ONH_4 + H_2O \rightleftarrows (NH_4)_2CO_3$.

The time required for precipitating the barium carbonate may be reduced to one hour by heating. For this purpose 10 mils of the sample, 30 mils of water and 20 mils barium chloride solution are placed in a pressure flask, the flask securely stoppered and introduced into a water bath, maintained at a temperature not less than 75° C.

All determinations should be checked, with sample prepared according to formula and of known composition.[10]

The reactions involved in the above methods for estimating the ammonium carbonate and ammonia water are as follows:

1. $NH_4HCO_3 + NH_4NH_2CO_2 + xNH_4OH = NH_4NH_2CO_2 + H_2O + (x - 1)NH_4OH$.

2. $NH_4NH_2CO_2 + H_2O \rightleftarrows (NH_4)_2CO_3$.

3. $(NH_4)_2CO_3 + NH_4NH_2CO_2 + 2H_2SO_4 = 2(NH_4)_2SO_4 + 2CO_2 + H_2O + 2NH_4OH + H_2SO_4 = (NH_4)_2SO_4 + H_2O$.

4. $(NH_4)_2CO_3 + BaCl_2 + (x - 1)NH_4OH = BaCO_3 + 2NH_4Cl + (x - 1)NH_4OH$.

5. $NH_4OH + HCl = NH_4Cl + H_2O$.

The alcohol content was determined only in special samples. The data therefore being incomplete, they are not reported in this article. The methods of analysis are however given.

CAMPHOR LINIMENT.[11]

METHODS OF ANALYSIS.

Camphor.—(*a*) Into a flat-bottomed, tared evaporating dish, place about 5 Gm. of the sample accurately weighed, heat at 150° C. until practically constant weight is secured and the odor of camphor is no longer perceptible. The loss in weight represents the amount of camphor contained in the liniment under examination.

(*b*) Determine the optical rotation in a 200 mm. tube and from the result obtained calculate the amount of camphor present. Example: Optical rotation of sample +31.4° on sugar scale. Optical rotation of standard sample[12] +58.5° on sugar scale.

Summary of Analysis.—Of the 42 samples examined, 17, or 40%, come within a 10% limit. 24, or 57%, come within a 15% limit, and 28, or 67%, come within a 20% variation from the standard. A deviation of 20% from the standard should be ample for an article of this character. Yet on this basis nearly one-third of the samples examined would be defective.

[9] *J. Biol. Chem.*, 1, 321, 1906.

[10] This procedure should be adopted whenever practicable.

[11] The 9th Rev. Dec. U. S. P. recognized "Camphorated Oil" a synonym of camphor liniment which eliminates an old-time controversy.

[12] See comments.

Comments.—Prepare a standard sample of camphor liniment by accurately weighing 20 Gm. of powdered dry camphor into a 200 mil saponification flask, then add exactly 80 Gm. of cottonseed oil, seal or tightly cork the flask, heat on a water bath with occasional shaking until solution results, finally cool the mixture to room temperature. The sample so prepared will read approximately +58.5° on the sugar scale at room temperature. This preparation should be used to check all determinations made. The standard should be freshly prepared for each series of determinations. Optical readings of the sample under investigation and the standard sample should be made under the same conditions.

The two methods above outlined give fairly concordant results as the following parallel figures show:

	Polariscope.	Loss by heating.
1 Camphor	7.18%	7.38%
2 Camphor	13.80%	14.56%
3 Camphor	8.5 %	8.58%
4 Camphor	2.1 %	2.0 %
5 Camphor	9.2 %	9.24%
6 Camphor	6.9 %	7.0 %
7 Camphor	8.6 %	8.65%
8 Camphor	14.9 %	15.28%
9 Camphor	8.7 %	8.35%
10 Camphor	6.6 %	6.74%
11 Camphor	26.15%	26.71%
12 Camphor	15.4 %	16.2 %
13 Camphor	11.5 %	11.5 %
14 Camphor	12.8 %	13.1 %

The loss on heating includes any moisture that may be present, so that the figures obtained by this procedure may be a trifle higher than those obtained by the optical method. If the article is turbid it should be filtered before making the determination of camphor.

If the product is made in an open vessel or is unduly heated without guarding against loss by evaporation the content of camphor will be low. The amount of camphor in the sample examined is therefore ascertained from the proportion: +58.5° : +31.4° : : 20 : X. X therefore equals 10.8%, the amount of camphor present in the sample examined.

LIME WATER.

Method of Analysis.—U. S. P. 8th Revision.

Summary of Analysis.—Of the 62 samples examined, 47, or 76%, came within 20% of the standard and 49, or 79%, within 25%. A majority of the defective samples were decidedly below standard and an increase to a 45% variation would show but little improvement. There is no upper limit. A deficiency of 99% does not speak well for any product.

PAREGORIC.

METHODS OF ANALYSIS.

Reagents.—Sodium hydroxide, 10%.

Common salt.

Alkaline salt solution, made by saturating a $2\frac{1}{2}$ to 3% sodium hydroxide solution with a common salt and filtering.

Barium chloride, a saturated solution.
Concentrated hydrochloric acid.
Concentrated ammonia.
Alcohol.
Chloroform, containing 5 to 7% alcohol.
Methyl red (0.2% alcoholic solution).

Morphine.—(*a*)[13] Evaporate 200 mils of the sample to a volume of 50 or 60 mils, transfer to a separatory funnel, rinsing the vessel in which the evaporation was made with several small portions of water, adding the rinsings to the separatory funnel. Shake out 3 times with 20 mils of chloroform, collecting the chloroform in another separatory funnel. Wash the combined chloroform with 5 mils of water, withdraw and add it to the main aqueous layer. Discard the chloroform, introduce the aqueous solution into a beaker, rinse the funnel with several small portions of water, adding the rinsings to the beaker. Heat the beaker on the water bath until the chloroform is expelled, then add 20 mils of 10% sodium hydroxide and mix well. Transfer into a 200 mil graduated flask containing 1 Gm. of powdered common salt for every 3 mils of the solution, add 15 mils of water, stopper the flask, and shake gently until the salt is dissolved. Rinse the beaker with several portions of alkaline salt solution adding the rinsings to the graduated flask, and dilute with the same solution to about 175 mils, rotate gently so as to mix without causing excessive frothing. Add 15 mils of saturated solution of barium chloride. Reduce the froth by the addition of a little alcohol and make up to volume with alkaline salt solution, stopper, shake thoroughly, then filter through a large, dry fluted paper. Refilter if filtrate is turbid.

By means of a pipette remove 100 mils of the filtrate corresponding to half the weight of the sample taken and introduce into a separatory funnel No. 1. Add concentrated hydrochloric acid in portions—towards the end not over $^1/_2$ mil at a time until acid to litmus, finally add 4 mils in excess; add concentrated ammonia in portions—towards the end not over *4 drops at a time*—until alkaline, then add 1 mil in excess. It is important that the quantities of acid and ammonia be added with the precision indicated. Add 10 mils of alcohol and shake out 6 times with chloroform, containing 5 to 7% alcohol, using 30, 20, 20, 15, 15 and 15 mils, respectively, filter each successive shake-out through cotton wetted with chloroform, into a separatory funnel No. 2. Discard the liquid in separatory funnel No. 1.

To funnel No. 2 add 15 mils of alkaline salt solution, shake, then withdraw the chloroform layer into a separatory funnel No. 3. To funnel No. 3 add 5 mils of alkaline salt solution, shake, withdraw the chloroform layer into a beaker and add the alkaline salt layer to funnel No. 2. Return the chloroform to funnel No. 3, shake with a fresh portion of 5 mils alkaline salt solution, reject the chloroform layer and keep the alkaline salt layer for later use. Shake out the alkaline salt solution in funnel No. 2 twice with 25 mils of chloroform each time, collecting the chloroform in separatory funnel No. 3. Shake funnel No. 3. Reject the chloroform layer and add the alkaline salt layer to the main alkaline salt solution in funnel No. 2.

To funnel No. 2 add concentrated hydrochloric acid *carefully*, reaching acidity within *2 or 3 drops;* then add 1 mil in excess. Add concentrated ammonia carefully, reaching alkalinity within *1 or 2 drops;* then add 5 drops in excess. Add 3 mils of water and 4 mils of alcohol. Shake out 5 times with chloroform containing 5 to 7% of alcohol, 30, 10, 10, 5 and 5 mils, respectively, filtering each successive shake-out through cotton wetted with chloroform into a beaker.

Evaporate the chloroform on the water bath to dryness. Add 10 mils of neutral alcohol and heat to dissolve. Add 3 to 5 drops of methyl red. Add $\frac{N}{50}$ sulphuric acid until about 2 to 5 mils in excess. At this stage look out for any undissolved specks; heat again if necessary. Evaporate most of the alcohol, cool, then titrate back with $\frac{N}{50}$ or $\frac{N}{100}$ sodium or potassium hydroxide which has been ascertained to be sufficiently free from carbonates to give a sharp end point with methyl red.

[13] Developed by H. E. Buchbinder based on the work of Kippenberger (*Z. anal. Chem.*, 34, 307, 1895; *Ibid.*, 39, 290, 1900); Warthle (*Chem. Ztg.*, 25, 290, 1901); Puckner (*J. Am. Chem. Soc.*, 23, 470, 1901); and Eaton (*Bull. Bur. Chem.*, 137, 188, 1911); *Ibid.*, 152, 242, 1911.

(*b*)[14] When not more than 50 to 100 mils of paregoric are available for assay, the above method may be modified by using the centrifuge to separate the emulsion formed when shaking with chloroform.

The sample, to which 2 mils normal H_2SO_4 have been added, is evaporated on the steam bath to a volume of about 10 to 15 mils, then transferred to a separator (which has been tested in the centrifuge and found to show no loss when centrifuged half full of chloroform for five minutes) or to an eight-ounce nursing bottle. Rinse in the last portions of the evaporated residue with two portions of half normal H_2SO_4, each portion 10 mils. The solution is then saturated with salt and carefully neutralized by adding NH_4OH conc., drop by drop, finally adding 5 drops in excess. Then add 30 mils of a mixture containing 85% by volume chloroform and 15% alcohol by volume, shake and centrifuge till a clear separation is effected, then remove the immiscible solvent—from the milk bottle by means of a pipette—and run it into a large separator.

The operation is repeated with successive portions of 30, 20, 20, and 15 mils, respectively, of the solvent mixture. A portion of the last shake-out should be evaporated to dryness on the steam bath and tested with formaldehyde-sulphuric reagent to insure complete extraction of the morphine. In case the test is positive the shaking-out must be repeated till no reaction is noted on a few mils of the shake-out.

Having completed the chloroform-alcohol shake-out and collected the solvent in a separator, add to the latter 15 mils of a saturated salt solution containing $2^1/_2$% NaOH and shake. Remove the chloroform alcohol to another separator and shake again with 10 mils of the alkaline salt solution.

Run off the chloroform alcohol into a beaker and transfer the alkaline salt shake-out into the first separator, then pour the chloroform-alcohol back into the second separator and shake again with 10 mils of the alkaline salt solution, and add this shake-out to the others in the first separator. Then wash these combined shake-outs with 5 to 10 mils chloroform. Reject the chloroform.

Exactly neutralize by adding conc. HCl, drop by drop, finally adding 1 mil in excess. Cool under the faucet and shake with 5 to 10 mils chloroform, remove the chloroform to another separator and shake it with 5 mils saturated salt solution to which 3 drops conc. HCl have been added. Discard the chloroform and add the acid salt solution to the sample in the first separator.

Now add conc. NH_4OH till the solution is just alkaline, and then 8 drops in excess. Cool under the faucet and extract immediately with successive portions of 30, 30, 20, 20 and 15 mils, respectively, of chloroform to which 5 to 7% by volume alcohol has been added, testing the final shake-out with formaldehyde-sulphuric reagent for complete extraction. Repeat shaking-out if necessary. The chloroform shake-outs are filtered through paper or a pledget of cotton, wetted with chloroform, into a flask, most of the chloroform distilled off and the remainder rinsed into a small tared beaker, evaporated on the steam bath to dryness and dried at 100°, weighed or dissolved in 3 to 5 mils neutral alcohol and titrated with $\frac{N}{50}$ acid, using methyl red as indicator.

Alcohol.—Introduce 25 mils of the sample into a distillation flask, dilute with two volumes of water, add about 1 Gm. sodium bicarbonate, mix well; slowly distil about 50 mils into a separatory funnel, saturate the distillate with common salt and shake out twice with about 15 mils of petroleum ether. Separation of the two liquids must be complete. Transfer the hydro-alcoholic salt solution to a suitable distillation flask. Wash the combined petroleum ether extract with successive portions of 10 and 5 mils, respectively, of a saturated salt solution, and add washings to distillation flask. Distil slowly into a 50 mil volumetric flask and make up accurately to 50 mils. All measurements must be made at the same temperature. The alcohol content of the distillate is calculated from the specific gravity in the usual way. On account of dilution the alcohol in distillate is one-half that contained in the original material.

Summary of Analysis.—Ninety-nine samples were examined, of these 72, or 73%, came within a 20% variation and 23, or 23% exceeded a 25% variation.

[14] Elaborated by B. H. St. John.

It should be noted that in all cases the excessive variations are represented by deficiencies, for example, —92, —82, —72%, etc.

Comments.—The directions should be followed to the letter and the determination should be carried out as rapidly as is consistent with careful manipulation. On no consideration should the morphine be allowed to remain in the alkaline salt solution for any considerable time, over $^1/_4$ to $^1/_2$ hour, as loss of morphine due to oxidation occurs.

It has been found to be imperative to keep the proper ratio of NH_4OH to ammonium salts in the solution to be extracted, hence the specific directions in regard to the addition of acid and ammonia.

It is also imperative in the final shake-out with chloroform to shake immediately after making alkaline, for while freshly precipitated morphine is readily extracted by the solvent used, if allowed to stand it becomes crystalline and its extraction becomes very difficult.

The procedure for estimating the morphine is somewhat involved on account of the small amount and the other ingredients contained therein. Considerable practice is also required to obtained accurate results. Experienced workers, however, obtain fairly concordant results.

The method for estimating alcohol differs in several particulars from the procedure given by Thorpe and Holmes,[15] or as modified by E. Richter[16] or A. Reuss.[17] Experience shows that in many cases a preliminary distillation of the original material before salting out and extracting with petroleum ether facilitates shaking-out and distillation and gives better results.

(*To be continued.*)

TUBERCULINS.*

BY L. K. DARBAKER.

"Tuberculosis was, without doubt, recognized and described by the early writers of medicine, but at that time it was known only under the general name 'consumption'—a name that to the present day is still in common use. This name was given the disease from the fact that patients dying from it have certain symptoms, such as loss of weight, good appetite, morning cough, night-sweats, and, although in apparent good health, going down slowly and easily to certain death—each sufferer always hopeful to the latest minute of life. Upon opening the bodies of these patients nodules or tubercles were found in the various affected parts; hence this name.

"Tuberculosis is a simple infection, caused by the *Tubercle streptothrix*, and is rarely fatal. The body, in protecting itself, forms a wall around the invading organism; hence the tubercle."

"Consumption is a complex infection in which the various streptococci and staphylococci are associated with the tubercle organism. The streptococci and

[15] *J. Chem. Soc. Trs.*, 83, Pt. I, 314, 1903.

[16] *Pharm. Ztg.*, 59, 430, 1914.

[17] *Pharm. Zentrh.*, 56, 61, 1915.

* Read before Pittsburgh Branch, A. Ph. A.

staphylococci attack and tear down by liquefaction the walled-up tubercles, and this is the material coughed up by the pulmonary consumptive. It is a consuming disease which, unless properly treated in time, always causes death."

In 1843 Klemke and in 1865 Villemain demonstrated the infectiousness of tuberculosis by animal experimentation, these results being later substantiated by Klebs, Chauveau, Baumgarten and Cohnheim. Baumgarten saw the first tubercle organism in sections of tubercular tissue from which the tissue had been dissolved by potassium hydroxide. About the same time, in 1882, Koch, by a special staining method, demonstrated the presence of the tubercle organism in all tubercular lesions, and confirmed the previous experiments in infecting animals. Later he obtained the tubercle organism in pure cultures.

The tubercle organism is an obligate aerobe, in the form of a non-flagellated rod, often slightly curved and exhibiting a number of spherical, oval or elongated clear spaces, which at one time were thought to be spores, but it has since been proven that spore reproduction of this organism is unknown. Many theories have been advanced as to the cause of these spaces, among which are the following: Vacuoles, or a form of degeneration, and a reserve form of nutritious material. Doctor Leteve, an authority on this subject, states, "When the organism shows the spaces there are two theories, first, the organism is sick, or is attacked; this is why we find this condition in the organism in old cultures and in sputum; second, the organism is in full health and grows more rapidly. Personally, I believe it is caused by the breaking down of the organism."

The organism shows many morphological variations under different conditions, and is classed as a streptothrix, although some still place it in the true bacteria class of the schizomycetes, and others, as being between the streptothrix—a *hypomycetes*—and true bacteria. However, it is evident that the organism is of a higher form than that of true bacteria.

The organism contains about 90 percent water, $2^1/_2$ percent fatty, wax-like coating and $7^1/_2$ percent protoplasm and cellulose. It is on account of the resistance of this fatty, wax-like coating on the outer wall to the ordinary stains that a special stain containing a mordant, as phenol, must be used, and if the staining process is not hastened by the aid of heat, it requires ten hours or longer for the penetration of the stain into the organism. But after the organism is once stained it resists giving off the stain to such an extent that it will not be decolorized with a 3 percent HCl in alcohol, or a 15 percent H_2SO_4 solution. Organisms having this property are called "acid fast" and include the tubercle organism, *bacillus leprae*, *smegma bacillus*, and others obtained from butter, hay and dung. About forty varieties belonging to this group have been described.

The tubercle organism grows in media containing 2 to 6 percent glycerin at a temperature of 36 to 40° C. The best medium consists of glycerin 5 percent, sodium chloride 5 percent, peptone 2 percent, guinea pig meat broth 1000 mils. The growth appears as a creeping, dry, whitish membrane, and when grown in a liquid medium for some time the whitish membrane sinks to the bottom.

The tubercle organism is resistant to desiccation and in a dry state will live for about three months, but if exposed to sunlight it will be destroyed in a few hours, and in diffused daylight in five to seven days. It is also destroyed in 24 hours in a mixture of equal parts of sputum and 5 percent phenol, or by one hour's

exposure to Röntgen rays. The organism is destroyed by moist heat at 55° C. in five hours, at 60° C. in one hour and at 95° C. in ten minutes, but if the organism is imbedded in sputum, it requires at least five minutes' boiling before destruction occurs. In some cases when the organism is grown on potato, putrid sputum, etc., or passed through a number of cultures, its virulence is decreased; in other cases the virulence is not altered.

Koch claimed that the bovine type organism could not infect man, and this was the general belief previous to 1901, when Smith and others conclusively proved that, although the tuberculosis of cattle and that of man were caused by different organisms, yet the type of one could and would infect the other. It is now known that practically all the human tuberculosis of the abdominal cavity, intestines, bones, skin, and glands is an infection caused by the bovine type organism.

The pulmonary type of infection is the most common. It is caused by the human type organism and is acquired by the inhalation of the organisms in dried sputum. Tuberculosis is not inherited, but as the babe is in constant association with the tuberculous mother, who will throw out in one day as many as 7,200,000,000 organisms, the organisms being thrown by the coughing five or more feet, the babe having weak lungs readily acquires the disease, the weakened condition of the lungs furnishing a fertile field for the organism growth.

The most susceptible age is from one to three years. From the third to the fifteenth year of a child's life the greater part of the day is spent in the open air, but after the fifteenth year it is not in the open air so much and from that age to middle life the disease shows a great increase in the number of cases.

A successful recovery from the disease produces some immunity but not sufficient to prevent a second infection.

In practically all autopsies the tubercles or healed lesions are found, showing that all or nearly all persons have at some time had a tuberculosis infection.

Smith, in the *Journal of the American Medical Association*, January 8, 1916, states, "10 percent of all deaths in children under the age of 15 years are due to tuberculosis. Since 8 percent of the deaths are caused by the bovine type, acquired by drinking milk obtained from tubercular cows, all milk for human consumption should be pasteurized." The tubercle organism may lay dormant and harmless in the body tissues for an indefinite period. Von Behring believed that nearly all cases of tuberculosis had their start in infancy.

Ten years ago the field was almost barren of organizations fighting the great white plague, but to-day there are in the United States 12,000 local tuberculosis organizations, 575 hospitals and sanatoriums, 540 special dispensaries, 1000 dispensary physicians, 4000 nurses, 400 open air schools. Over $100,000,000 has been spent in fighting the disease.

All animals are prone to tuberculosis. The hog, goat, lion and tiger in their natural elements are the most resistant.

There are many types of organisms causing the disease:

Human type, previously described.

Bovine type, infecting cattle and man. This type differs from the human type by usually being of the pulmonary nodular type, although it may become general (miliary). The nodules grow to a large size and the organisms show signs of branching.

Avian type, common to birds and chickens, appearing as yellowish white nodules in the intestines and liver. The nodules vary in size from that of a pea to the size of a walnut. The growth is moist and mucous-like, while that of the human type is brittle, warty and dry. The organism is club shaped and more easily cultivated than that of the human type; it also grows at a higher temperature, 40 to 50° C. This type is less pathogenic to guinea pigs but more so for rabbits.

Piscum type, the organism causing tuberculosis in fish.

Pseudo types of many varieties have been found in various animals, as mice and sheep, but time does not permit going into details.

Killed cultures of the human organism, when given subcutaneously, may produce necrosis, abscesses and a subnormal temperature. When given to small animals intravenously, it causes a rapid emaciation and death in from a few days to a few weeks. Guinea pigs and rabbits are very susceptible. By beginning with very small doses, the animal may become habituated to the toxin intoxication and eventually withstand large doses. This is also true of the various toxic substances as tuberculins.

The protein and alkaline extracts of the organism cause abscesses when given subcutaneously. The toxin is a complex substance, containing among other things a fever-producing body, also found in the tuberculins, which are toxic substances produced by the organisms. This fever-producing body is the cause of the rise in temperature when tuberculins are injected. It is 100 times as toxic for tubercular animals as for the healthy. There is also present a temperature-reducing body, called "toxalbumin," which is destroyed by heat at 100° C. Another body has been isolated which will cause fatal convulsions when injected into animals. These bodies show their greatest effect when injected into the brain, and this should be the method of standardization of tuberculins.

In 1881, Koch announced an agent to be used for the specific diagnosis of tuberculosis, giving this substance the name of "Tuberculin." This preparation consisted of cultures of the human type organism, grown in a peptone broth containing 5 percent glycerin, for four weeks. At the end of four weeks' growth the cultures were killed by heating at 100° C. for one hour, evaporating this killed fluid culture to 1/10 its original volume in vacuum at a low temperature, removing the bacterial cells by filtration and adding 50 percent glycerin as a preservative. This preparation is known as "Old Tuberculin," or "O. T."

The "Original Tuberculin" differs from the "Old Tuberculin" by not being heated and evaporated and by having 0.5 percent phenol added as a preservative. The active toxic substances may be precipitated out by the addition of 66 percent alcohol.

The next advance in tuberculins was the "T. A." or "Alkaline Tuberculin," which was made by extracting cultures with 10 percent sodium hydroxide solution. Its diagnostic value was said to exceed that of the former tuberculins on account of the longer duration of the reaction. However, in view of its containing undissolved cells, which caused the formation of abscesses at the site of injection, it rapidly fell into disuse.

For the purpose of immunization, Koch, in 1897, prepared a fluid, which contained all the organism constituents and at the same time was readily absorbed with but little abscess formation. Dried masses of the organism, filtered from the

cultures, were ground in an agate mortar and after being suspended in distilled water, were centrifuged. The emulsion consisted of two layers; the upper opalescent, whitish liquid was designated as "Tuberculin Obers" or "T. O." After removing this fluid, which contained the water-soluble constituents, the residue containing the water-insoluble constituents was dried, ground in mortars, suspended in water and centrifuged; this process being repeated until no sediment remained. It was then preserved with 20 percent glycerin. This preparation was called "Tuberculin Rest" or "Tuberculin Residue" or "T. R." and consisted of an emulsion containing the minute fragments of the organism cells, which were readily absorbed and caused few abscesses. It has also been given the name "Koch's New Tuberculin."

Koch later devised another preparation for the active immunization, and also for performing the agglutination tests. This preparation consisted of the dried and ground organisms emulsified with 20 percent glycerin and water, and was designated as "neutuberculin" or "Bazillen Emulsion" or "B. E."

A short time later Denny's "Bouillon Filtrate" or "B. F." was produced. This was composed of the unheated filtrate from a broth culture, filtered first through paper and then through porcelain, and contained all the soluble products of the organism as it grows in a broth medium.

Many analogous preparations have been made by the various investigators, among which the most important are: "Tuberculocidin" of Klebs; Tuberculins of Schweinitz and Dorset; those of the Dennys; "Tubercle Toxins" of Maragliano, in which the antitoxic sera were used; the "Oxytuberculin" of Herschfelder; the "T. D." and the "T. D. R." of von Behring; "Tuberculoplasm" of Büchner, and many others.

The true toxin of the organism has been claimed to have been obtained by Marmoreth, by growing the young virulent cultures on a very complicated medium, and he denies that the tuberculin represents the true organism toxin.

"Bovine Tuberculin" is manufactured from the tubercle organisms of the bovine type and is claimed by some to be of equal and even of superior value to that made from the human type, and also that it will cause less reaction.

"Sensitized Tuberculin" or "Sero-Tuberculin" consists of a Bazillen Emulsion sensitized with anti-tuberculin horse serum—that is, the virulent cultures are mixed with the immune serum obtained from the horse which has been immunized (??) against the organism. The cultures are permitted to stand in the immune serum for 24 hours, then the organisms are washed free from the serum and repeatedly centrifuged with saline solution, mixed with physiological saline solution, standardized, killed by sterilization with heat and a small amount of preservative added. It is claimed that his preparation overcomes the infiltrations at the site of injection.

Standardization.—Tuberculin can not be accurately standardized. On account of the great susceptibility of tuberculous animals to tuberculin, the standardization is estimated on the quantity required to kill such animals. From 0.5 to 1 mil of tuberculin when injected into a healthy guinea pig will cause no local or general reaction, but if 0.1 to 0.15 mil be injected into a tubercular pig, death results in from 24 to 48 hours. Lingelsheim recommends intracerebral injections into healthy pigs. On account of the extreme toxicity of tuberculin when in-

jected into the central nervous system, this method requires only 1/180 as much tuberculin to cause death as the subcutaneous or intraperitoneal injections.

Behring bases the value of tuberculins on their toxicity for healthy pigs and expressed 1 mil (1000 M.) or 1 gramme of the toxin as fatal for each 1000 grammes of pig tissue; his "T. D." having a value of 1,250 M. and the" T. D. R." of 12,500 M.

The most reliable method is that of the Frankfort Royal Institute of Experimental Therapy, which is: Two series of pigs are injected with pure cultures of the tubercle organism and then are injected with decreasing doses of tuberculin. In one series a standard preparation of tuberculin is used, in the other series the tuberculin to be tested is injected. If the minimum fatal dose of the sample is the same as the standard, it is of official strength, but if stronger, dilutions are made, if weaker it is concentrated by evaporation.

Koch's "T. R." represents 2 milligrammes of solids to the mil; the "B. E." 5 milligrammes of solids to the mil. Many American manufacturers use a preparation of which one mil represents one milligramme.

All tuberculin injections are dangerous and the writer has heard several physicians state that "undoubtedly they had helped many patients to the great beyond, by the administration of tuberculins."

For diagnostic purposes the following technic is pursued: First, being assured that the patient has no continuous fever by noting the temperature every two hours for several days, 1 milligramme of tuberculin is injected subcutaneously; for very young or very weak patients only 0.05 to 0.1 milligramme is used. Many authorities never use more than 0.1 milligramme in any case as the initial dose. If no rise in temperature is produced by this amount, in the course of a few days a second injection of a slightly larger amount is given; usually an interval of three days elapsing between doses. Koch used as much as 10 milligrammes before concluding that the reaction was negative. Lowenstein recommends that the cumulative action of three to four very small doses at intervals of three days is of more value, and this view is now generally accepted.

Many theories have been advanced as to the cause of the reactions but as yet none have been accepted. In view of Naegelis finding that 97 percent of autopsies yield tuberculosis lesions, active or healed, the value of tuberculin reactions would seem to be relative only. It is thought by some that tuberculin produces an inflammatory reaction around the tuberculous areas, which may cause the dissemination of the organisms, but Tradeau, Baldwin and Kinghorn in animal experimentation found such was not the case.

The "Cutaneous or von Pirquet Reaction" depends on the increased capacity of the skin in tuberculous patients to react to tuberculin. The ventral surface of the forearm is cleansed with ether or soap and water, two drops of tuberculin are placed on the cleansed area at points about 10 cm. apart. The skin beneath the tuberculin is then scarified as for ordinary smallpox vaccination and several strands of cotton are placed across this area to prevent the spreading of the tuberculin. A third scarification is made about equi-distant from the others but no tuberculin used; this is for the control.

The Traumatic reaction occurs in a few minutes. All the points of scarification show a small papule surrounded by a soft red areole, which disappears in a few hours. A slightly raised red spot about the size of a pin head remains; this

becomes covered with a crust, which is succeeded by a pigmentation and a gradual return to normal in a week or so. Negative reactions show the same conditions as the control site; the swelling lasting about twenty-four hours only and the areola being less than 5 mm. in size. The positive reaction has an incubation period lasting from three to twenty-four hours, usually less than twenty-four hours. Those developing later than twenty-four hours, von Pirquet calls "Torpid Reactions." Such reactions occur more frequently in children and clinically unsuspected cases.

The development of the inflamatory reaction begins usually with a slightly raised areola, reddening, spreading from the point of scarification and increasing rapidly in diameter and height. The papule diameter varies, averaging 1 Cm. Small vesicles sometimes form on the papule. The color differs from the normal skin by being a deep red. Very pale papules may develop in cases of fatal tuberculosis, and when this occurs the reaction is designated as "Cachectic Reaction."

The maximum development is reached usually in forty-eight hours after which time the swelling is reduced, the red color changing to violet, then to a yellow and finally becoming brown. The swelling appears in five to eight days and the pigmentation in a few weeks. Observations are best made forty-eight hours after vaccination. Usually in eight to fourteen hours a progressive rise in temperature of 2 to 5° is noted; receding after two to six hours duration.

Sometimes when a negative reaction is obtained, a second injection produces a positive reaction, and if this occurs, the site of the original injection reddens.

The reaction is very delicate and since most adults have healed tubercles, the reaction as an indicator of active lesions is of value only in very young children.[1]

(*To be continued.*)

PHARMACOLOGICAL EQUIVALENTS AND THERAPEUTIC UNITS, A PROPOSED REFORM IN PRESCRIBING.

The author proposes a method for prescribing, which is devised to relegate the whole of the responsibility of correct dosage to the pharmacist. It is suggested that the prescriber should not trouble about the doses of the drugs to be given. When prescribing, he should merely indicate a certain number of appropriate doses, leaving the amount to be given in each case entirely to the compounder. It is argued that the former has no time to learn and remember doses; whereas the latter has always his books at hand to which he can refer. To carry out this scheme, the agreed normal dose for twenty-four hours either in weight or volume, for an adult, of any preparation, is designated the "pharmacological equivalent," and represented by the letters, E. P. One-tenth part of this is to be known as the "therapeutic unit," and represented by the figures U. T. Under this scheme a prescription would be written thus: Pyramidon, 5 U. T.; Phenacetin, 3 U. T.; exalgin, 2 U. T. For 5 cachets to be taken in twenty-four hours. Twenty-five such to be sent. When excipients and liquid vehicles are prescribed, these are to be left entirely to the pharmacist, thus: Potassium bromide, sodium bromide, ammonium bromide, of each, 4 U. T.; distilled water, syrup of orange, of each, q. s. Three tablespoonfuls a day. Send sufficient for ten days.—Dr. Y. Delarge (*L'Union Pharm.*, 1917, 58, 113; through *Pharmaceutical Journal*).

[1] Ricket's "Infection and Immunity."

CONTRIBUTED AND SELECTED

JUSTICE TO THE PHARMACEUTICAL SERVICE OF THE U. S. ARMY.*

BY J. W. ENGLAND.

In the current isssue of the *Journal of the American Medical Association* (June 16, 1917), there appears an editorial upon the subject of "Justice to the Pharmacist." It is of unusual interest and significance. It reads as follows:

JUSTICE TO THE PHARMACIST.

The letter in the correspondence department of this issue from Mr. J. W. England, Secretary of the Council of the American Pharmaceutical Association, calls attention to an anomalous state of affairs. Physicians, dentists and veterinarians are officially recognized by the government as men of special training, whose technical knowledge can be of use to the nation in time of war. Provision is made so that men in these three professions can be enrolled as commissioned officers and their skill thus most efficiently used by the Army. The pharmacist, however—as a pharmacist—is utterly ignored. If he enlists he does so as a private. So far as official recognition of it is concerned, the science and art of pharmacy might not exist for the Army. To-day, as never before, victory in war goes to the nation that most effectively conserves the health of its fighting men. The physician is now of such military importance that the medical profession will be called on to make no inconsiderable sacrifices. It will materially lighten the arduous duties and responsibilities of the physician to have in the Army trained pharmacists who will be able to give intelligent coöperation. But it is imposing too great a strain on the patriotism of those whose special knowledge is obviously a large asset to the Army, to expect them to enlist as privates without any recognition of their national worth. Pharmacists should be given a rank commensurate with their importance, first because it is but simple justice to the pharmacists themselves; secondly, because the usefulness of the medical corps will be greatly augmented and, lastly, and most important, because the efficiency of our Army demands it.

The letter referred to is as follows:

To the Editor:—The one outstanding feature of the present world-wide war, which differentiates it from all previous wars, is the recognition of the importance of the industrial resources of nations. Not only is the war of to-day a contest between military forces, but it is a contest between industrial forces. Every nation involved is mobilizing its industries—using the term in its broadest sense—and stimulating their growth and development to the highest plane of efficiency, realizing that, in the final analysis, victory will go to that nation or those nations which will hold out the longest—industrially, financially, and militarily. It is a war of attrition. Such being the case, it is vital that the United States, having entered into the war, should mobilize its industries—which it is doing with the aid of the Council of National Defense—and do everything possible to strengthen the weak links of its industrial chain.

One of the most important industries of the war is the relief of human suffering and the saving of human life, and this is the special province of the medical profession, which has never failed to discharge its duty in the past and will not fail now. No one can question the loyalty of the American medical profession to the highest ideals of professional conduct or its patriotism.

The weakest link of the army is its system of pharmaceutic service. This is exceedingly unsatisfactory, because it is hopelessly antiquated. We have no pharmaceutic corps, pharmacists being compelled to enlist as privates without any provision for commissioned rank, as in the dental and veterinary corps. France, Germany, Japan and other nations have such corps, in charge of a pharmaceutic expert of high military standing. The head of the Pharmaceutic Corps in Germany is of the rank of colonel; in Japan of the rank of lieutenant-colonel, and in Italy and France of the rank of major-general.

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* Read before the Pennsylvania Pharmaceutical Association meeting, 1917.

The present system is detrimental to the efficiency of the army because it fails to recognize the importance of proper and sufficient pharmaceutic service and denies to the sick and wounded the best pharmaceutic service the nation can give. The present system is unfair to pharmacy and pharmacists. Pharmacy is a profession and the graduated pharmacists of to-day have had years of collegiate training and practical experience. To enlist professional men as privates is not only unjust to the men, but it is also unjust to the army, because it denies to the army the possibilities of service which such men could render. We hear a great deal these days about commericalism in modern pharmacy, but there has never been a time when American pharmacists, as a class, were being better trained for professional work than to-day. There are upward of 100 colleges of pharmacy in the country and these are growing less in number—and stronger. The entrance requirements are being raised, the curriculums extended and everything possible is being done to uplift American pharmacy, professionally. One thousand five hundred pharmacists graduate this year and they are loyal to high professional ideals.

The present system is unfair to the medical corps because it denies to that body the assistance and support that a properly trained pharmaceutic corps could give. Pharmacists have been trained not only in pharmacy, but they have also had elementary training in some of the medical sciences, and could be made most useful "medical assistants" in the field, while in the hospitals they could be made purveyors and given charge of the medical supplies, as well as render pharmaceutical and chemical service in the dispensing of drugs and in the chemical and bacteriologic examination of food, water, milk, excrements, etc. In addition they could be developed into useful workers in Roentgen-ray, anesthesia, bandaging and sanitation. The present war is more destructive in injuries and fatalities, both to privates and to physicians, than ever before. Before the war, our army required seven medical officers for each thousand combatants. To-day our army is requiring ten medical men for each thousand, while the British forces have increased their number to nineteen, and it is more than probable that when we get into action we shall have to adopt the British ratio. This means 19,000 physicians for each million of troops or 38,000 for two millions. To-day, there are probably less than 5,000 medical men in commission or in the reserve corps. Hence, it is exceedingly important that the medical forces of the country be mobilized, and a properly trained pharmaceutic corps could be made of great usefulness to the medical corps as "assistants," both in the field and in hospitals.

Approximately there are 150,000 pharmacists in the United States from which an ample supply of skilled pharmacists could be drawn; but the conditions of pharmaceutic service in the army will have to be radically changed before they can do their best work. American pharmacy is a profession, no matter how much it may be tinctured in some directions with commercialism, and American pharmacists in general and the American Pharmaceutical Association in particular have been making serious and earnest endeavors to improve existing conditions.

Like the cry of Macedonia, we ask the great American medical profession to "come over and help us" in the upbuilding of American pharmacy, so that both the profession of medicine and the profession of pharmacy may be bettered. We ask, also, that the medical profession put its seal of approval on the movement to establish a pharmaceutic corps in the army and urge the War Department and the Congress to establish such a corps with proper military standing and responsibilities. American pharmacy is not seeking any special privilege, but it is asking for proper professional recognition in the army service to the end that it may have the opportunity to do its fullest and best work for the sick and the wounded.

JOSEPH W. ENGLAND, Philadelphia.

The first question that naturally arises is: "What is the attitude of the War Department upon the question of the establishment of a pharmaceutical corps in the Army?" because the wishes of the department will be respected. And it must be confessed that the War Department *has been* consistently opposed to any modification of the existing Army establishment along the lines indicated. Its attitude has been that it does not consider the establishment of a commissioned pharmaceutical corps in the Army expedient at the present time, because it does not "appear" to be necessary. In other words, the department is open-minded. It is willing to be shown. Its officials are apparently Illustrious Sons of the Ancient

and Honorable State of Missouri. But they are not like the Scotchman who said that he was always "willing to be convinced, but he would like to see the mon who could do it!" The War Department officials are men of the highest character, honest and sincere, facing stupendous problems; and they deserve the sympathy and support of every loyal American citizen; their only fault—if it is a fault—is that they do not understand technical, professional pharmacy and cannot visualize its possibilities in the Army service. They need "vision" and it is up to the pharmaceutical profession to demonstrate to them the desirability and necessity of a commissioned pharmaceutical corps in the Army.

In the first place, it must be admitted that pharmacy as practiced in the Army to-day is very elemental. It is alleged that "canned pharmacy is the order of the day in the Army." By "canned pharmacy" is meant that compressed tablets, or like products, possibly dry and hard, and of uncertain age and solubility, are chiefly used in medical treatment, no attempt being made to individualize the treatment. If this be true, it is obvious, of course, that the treatment cannot compare in comprehensiveness and efficiency with that of private practice and the clinical results must be inferior. Of course, on the firing line, where convenience and portability are most essential, there must be compactness and a very limited range of medicaments, but in the base and general hospitals there should be scientific treatment, with abundant opportunities for the pharmacist, not only in the compounding and dispensing of drugs, but also, in chemical, clinical, biological, bacteriological, sanitation, dietetic, Roentgen-ray, toxicological and other scientific work.

One of the most important lines of work that could be given pharmacists in the Army would be as medical assistants. Pharmacists are skilled technical men, and, as pointed out by the *Journal of the American Medical Association*, they could intelligently coöperate with the medical profession in the Army and materially lighten the arduous duties and responsibilities of physicians. They have an exceptional knowledge of chemistry and by reason of their daily, practical work, have acquired a manipulative skill in the handling of chemicals and other materials that should enable them to become, with a little training, skilled assistants, not only in drug dispensing, but also in the applications of the various clinical tests required by modern medical practice.

Almost equally as important—if not more so—are the possibilities of the development of pharmacists in the field of preventive medicine; that is, as aides or assistants in the exceedingly important work of Army sanitation. Pharmacists have had some training in bacteriology and disinfection, and their knowledge of chemistry and their practicability would enable them to quickly become skilled sanitary workers.

Some conception of the vital importance of sanitation in Army life may be had from a recent statement of Dr. Henry Skinner, President of the American Entomological Society (*Public Ledger*, June 16, 1917), who states that: "During the Civil War, on the Union side, 93,369 soldiers were killed, and 186,216 were the victims of disease. In the Crimean War, 4,602 were killed and 17,580 died from disease. A remarkable example of mortality from disease and low death rate from wounds is shown by the figures from the French expedition to Madagascar in 1894, 29 being killed and 7,000 dying from disease. In the Spanish-American

War of 1898, only 454 Americans were killed and 5,277 died from disease, mostly typhoid fever carried by house flies."

Dr. Skinner states, also, that "so far as we are aware, the Government has done very little to prevent a recurrence of this dreadful sacrifice of life."

The excessive mortality referred to was due, most largely, to pathogenic diseases; and as evidence of the life-saving value of modern sanitation may be cited the remarkable reduction of mortality from disease in the Army of Japan during the Russo-Japanese War.

Can the United States afford to have an Army sanitary service that is inferior to that of Japan?

In sanitary work, large numbers of men are required, more than can be spared from the overburdened medical corps. Why not train pharmacists for sanitary service and reduce the pressure upon medical men. They have had a technical training that peculiarly fits them to excel in such work.

The activities of pharmacists in the Army, if properly developed, could be directed into one or all of three channels, according to individual ability, training and experience; that is, they could serve as surgical aides, as medical aides (including drug dispensing), and as sanitary aides, according to the following scheme:

1. In Field and Evacuation Hospitals: Anesthetization, wound-washing, wound-dressing, wound-drainage, paraffin dressing, drug dispensing, shock treatment and sanitation.

2. In Base Hospitals: Same as 1, but also urinary analysis, primary bacteriologic tests, Roentgen-ray work, more drug dispensing, and dietetic work.

3. In General Hospitals: Same as 2, but also chemical assay and bacteriologic examinations of food, water, milk, body excretions, soil, etc., clinical tests, clinical surgical work (plaster Paris bandaging and other surgical dressings and appliances), toxicology and more drug dispensing.

4. In Convalescent Homes: Same as 3, but more drug dispensing.

5. In Army Pharmacological Laboratories: The testing of drugs, biologics, disinfectants, surgical dressings and chemical and pharmaceutical products of all kinds, purchased for Army use.

To enable pharmacists to act in all these lines of activity in the Army service would require additional training along surgical and medical lines. Army pharmacy training would doubtless be given by colleges of pharmacy, if desired by the Government, and the latter would doubtless be willing, in return, to detail Army physicians, surgeons and sanitarians, to give special instruction.

It is exceedingly gratifying to learn that the American Medical Association has recognized the necessity of lightening the duties and responsibilities of the Army physicians, and the possibilities of service that properly trained pharmacists in the Army can give to physicians; but this coöperation can be made effective only by expending or increasing the duties of the pharmacists in the Army and by giving them a commissioned rank.

I would suggest that the Pennsylvania Pharmaceutical Association endorse the movement for the establishment of a commissioned Pharmaceutical Corps in the Army and appoint a committee with power to coöperate with other pharmaceutical bodies working toward this same end.

PHARMACISTS AND THE WAR.*

BY H. M. WHELPLEY.

Twelve months ago, we met here and expressed privately our opinions of the human slaughter then going on in the old world. Since then, the war cloud has extended until it is now easier to name the countries that are at peace than it is to enumerate the ones engaged in the greatest and gravest of all human conflicts. One year ago, we congratulated ourselves that the United States was not in the struggle. Now, we are preparing to enact the most important part in "making the world safe for Democracy." These are, indeed, momentous days. The entire Western World will likely be a participant in the contest before our next Mo. Ph. A. convention. The "six weeks' war" which started in 1914 may continue far past that number of years. These are thought-provoking times for every citizen. The words "citizen" and "alien" have assumed a new and grave significance. It is not difficult to recognize our duty to our country and to the human race in our determination of "setting the world free." But we are pharmacists by training and occupation. The retailer has long practiced serving the public. How can pharmacists now serve their country? What more have they to offer than physical fitness and eligible age? Will the pharmacists of the United States, as the years of war go on, be found digging trenches "somewhere in Europe," or will they contribute service dependent on pharmaceutical skill and knowledge?

Unfortunately, our own government does not give pharmacists the recognition in a war that they receive in France, Italy, Japan and Germany. But that recognition may come before this long-drawn-out war is over. To-day, the pharmacist has the best opportunity for service in the Navy. He also has a place in the Army and one in the Public Health and Marine Hospital Service. All young men now in pharmacy, and particularly those just entering as apprentices, should make certain of having sufficient preliminary education. They should push their studies in pharmacy at college or home, as the case may be. Those who cannot enlist will find plenty to do without going to war. The cry for drug clerks is already loud and will become more insistent as the drafts follow each other. The Medical Section of the Council of National Defense is pleading with physicians to enlist. We do not hear a government cry for more pharmacists but this country is just approaching participation in the war

We are equally concerned with problems affecting the pharmacists who remain at home to follow their calling. It is needless to say that they will be affected by all general taxes, food regulations and other conditions imposed on the public at large. The special taxes on their business and high cost of drugs they should be able to pass on to the consumer, to whom they belong. I regret that some retail druggists continue even at this late date to sell drugs at figures based on original cost instead of market value. One druggist disposed of his entire stock of potassium permanganate at less per pound than he can replace the chemical per ounce. Similar cases occur daily in spite of drug price lists and market reviews. Pharmacists are quite as likely to make a success of a drug garden as they are to glut the market from a home truck garden, but that is not saying much. No one should attempt a drug garden before consulting with the U. S. Department of Agriculture,

* Read at the meeting of Missouri Pharmaceutical Association, 1917.

at Washington. In England, the British government reports quite as much success in harvesting wild drugs as in cultivating plants. It must be remembered that England has a much more restricted flora than is the case in the United States. We have a long list of indigenous drugs and climate, latitude, altitude, etc., for the growing of many exotic plants.

Now, to be more personal, I bring home to you the duty we owe the Missouri Pharmaceutical Association, which secured our original pharmacy law of 1879 and for nearly forty years has had a hand in all pharmaceutical progress in Missouri. War or no war, we should continue to develop and expand the organization. Here we can solve practical questions in a practical way.

One form of recognition which our government has recently given pharmacy is to use the laboratories and faculties of certain colleges of pharmacy for testing medical supplies. This is done in lieu of establishing government testing laboratories.

Now, in conclusion, this horrible war is waged to make the world better and mankind secure from molestation. At the same time, let us gain for pharmacy a just position and recognition. We bewail the fact that our government is far behind Japan in using in war the talents of pharmacists. I quite agree with Hugh Craig, when he says, "The pharmacist has been so careless of his position in the social economy as to leave the public ignorant of his deserts."

I feel that we should not be satisfied after the war with a status *quo ante* but now look forward to better pharmacy after the war.

REASONS FOR SOME OF THE CHANGES IN THE FORMULAS OF GALENICALS MADE IN THE NINTH REVISION OF THE UNITED STATES PHARMACOPOEIA.*

BY GEORGE M. BERINGER, PH.M.

At the meeting of the Philadelphia Branch of the American Pharmaceutical Association held in November 1916, the writer presented a paper under the above title. As the program for that meeting was a symposium on the Pharmacopoeia and there was assigned to me the title, "Extracts, Fluidextracts and Tinctures," my communication was primarily restricted to the changes made in these classes of official galenicals. The favorable comments elicited by the publication of that paper appear to indicate that a continuation of the subject to the other galenicals of the pharmacopoeia would be an appropriate topic for presentation at this meeting.

The reasons for some of the changes made in the revision of the Pharmacopoeia are so easily understood as to be classified as "self-apparent," but for other changes it may be difficult to assign a tangible explanation.

The decision whether an article or formula shall be admitted to, retained in, or deleted from the official list of titles is presumed to be based upon the medical practice of the time and the general or extended use of such medicament. The late Professor C. S. N. Hallberg assiduously gathered statistics from all over the United States to determine the facts regarding the use of hundreds of drugs and preparations with the expectation that the statistics so gathered would be available and accepted by the Committee of Revision as the basis for deciding the admission, retention or dismissal of articles on the official list. The decisions of the committee seem to indicate that these data were not given the consideration it had

* Read at the meeting of the New Jersey Pharmaceutical Association, 1917.

been expected they would receive and that the decisions on such matters were largely based on personal practice and preferences. Consequently, it is hard to reconcile as consistent the changes made by the additions and deletions. It is, for example, difficult to explain why Acidum Camphoricum was dismissed and Acidum Phenylcinchonicum has been admitted, and why Apocynum and Fluidextract of Apocynum were deleted and Aspidospermum and Fluidextract of Aspidospermum have been introduced.

On the basis of American medical practice and use, it is even more difficult to explain the expulsion from the official list of such popular formulas as Cataplasm of Kaolin, Antiseptic Solution, Goulard's Cerate, Compound Resin Cerate, Compound Acetanilid Powder, Mixture of Rhubarb and Soda, Compound Spirit of Ether, Compound Syrup of Hypophosphites, and Ointment of Red Mercuric Oxide. How fortunate it is that we have in the National Formulary a second legal authority and that it has incorporated these formulas and so retained authoritative legal standards for these. It may be that the knowledge that the National Formulary would probably adopt these dismissed formulas may have influenced the decisions of the pharmacopoeia revision committee. Whatever may have been the cause, these actions demonstrate the necessity for the two legal standards and how fortunate it was that the National Formulary was systematically revised. The increased importance thus accorded to the National Formulary now makes imperative that it be permanently maintained on a high scientific basis.

The improvements in the directions for the preparing and the proper storing of galenicals in order to insure permanency and efficiency of the products is in evidence throughout the U. S. P. IX. As examples, chloroform water, creosote water, orange flower water and rose water are directed to be prepared with recently boiled distilled water.

In Aqua Hamamelidis, the impractical and inaccurate formula of the U. S. P. VIII has been omitted. The production of this preparation cannot be undertaken by the pharmacist and it can only be carried on as a commercial operation in favorable localities. The Pharmacopoeia has rightly eliminated the process and standardized the product so far as possible and supplied appropriate tests for adulterants.

The readiness with which the public accepts and the drug trade adapts itself to the legal pronouncements of the pharmacopoeia has been shown by the universal acceptance of the official standard for Poison Tablets of Corrosive Sublimate. The prompt disappearance from the drug stores of the formerly extensively used white disk shape of sublimate tablets has minimized the danger of accidental poisoning from this source which was for a time so prolific of fatalities.

The number of Cerates has been reduced from six to three and the formulas for two of those retained are notably improved. The U. S. P. VIII directed 20 percent of white petrolatum to be used in the formula for Cerate. Petrolatum in this mixture of wax and lard did not prove to be satisfactory or yield a uniform smooth product; hence, the return in the formula to white wax and benzoinated lard was decided upon.

In the U. S. P. VIII formula for Cantharides Cerate, the powdered cantharides was directed to be macerated "in a warm place for 48 hours with the liquid petrolatum." Liquid petrolatum is not a good solvent for cantharidin and no attempt was made by this formula to liberate the combined cantharidin or to obtain the

maximum effect from the cantharides used. In the improved formula of the ninth revision glacial acetic acid is directed to liberate the cantharidin and likewise to aid in its solution in the turpentine. The formula is very satisfactory and with good cantharides will yield an efficient epispastic.

In Cantharidal Collodion, we note another improved formula based upon our knowledge of cantharides and the proper solvents for its constituents. In the U. S. P. VIII formula for this, the cantharides were directed to be exhausted with chloroform and the extract so obtained mixed with flexible collodion. The resulting product usually gelatinized or precipitated in a short time and became worthless. The extraction with a mixture of acetone and acetic acid now directed yields an active and permanent preparation.

In Flexible Collodion of the Revision, by the use of camphor and castor oil in appropriate proportions, a closely adhering stronger and more flexible film is produced than that yielded by the old formula with larger quantities of Canada turpentine and castor oil and does so at considerable saving in cost.

Elixir Glycyrrhiza is now the official title instead of Elixir Adjuvans, the slight increase in the amount of the fluidextract of glycyrrhiza directed only rounding out the proportion of 1 to 7 of elixir.

In modern pharmaceutical practice, Emplastra do not play a very important role. The preparation of Adhesive Plaster and Belladonna Plasters now used can only be attempted on a large scale and with special machinery; hence, formulas for these are omitted.

Lead Plaster instead of being prepared by decomposing soap by lead acetate, as in the U. S. P. VIII, is now directed to be made by boiling with water equal weights of lead oxide, olive oil and lard. If ingredients of proper quality be used, the resulting product will no doubt be satisfactory.

In Infusion of Digitalis, we note a change of doubtful propriety, namely, the omission of alcohol. The argument used in favor of this change was that the alcohol played no part in the extraction of the drug or the therapeutic activity of this preparation and that it gave a false impression as to the stability so that the infusion probably would not be made and used as fresh as it should be. While it must be acknowledged that the alcohol is not necessary for the making of the infusion, it is nevertheless uncertain if it did not serve a useful purpose in the formula. Infusion of Digitalis is not administered while freshly made and warm and in large doses as are many of the common infusions. The physician usually directs a dose of from one to four fluid drachms[1] several times a day and prescribes sufficient for several days. The 10 percent of alcohol formerly directed was sufficient to preserve the infusion for this limited period and I am not convinced that it did not likewise exert some therapeutic action by stimulating the absorption of the digitalis. Complaint has already been made that the infusion made by the new formula, without the alcohol, very soon spoils. Our experience with the other digitalis galenicals proves that the glucosides of this drug are readily hydrolized even in a menstruum of diluted alcohol, and to avoid rapid deterioration in the tincture and fluidextract, the Pharmacopoeia has increased the alcoholic content of these preparations. Yet on theoretical grounds, not substantiated by

[1] It is to be noted that in the U. S. P. VIII the average dose was given as 2 fluid drachms and the U. S. P. IX now states: Average dose 1 fluid drachm.

either practical experiment or therapeutic testing, the alcohol was stricken from the infusion, one of the most important of diuretic and cardiac remedies.

Ammonia Liniment is directed to be made by agitating 1 volume of ammonia water with 3 volumes of sesame oil and this simple procedure yields a perfect preparation. The U. S. P. VIII patriotically endeavored to utilize in this formula an American product, cottonseed oil, and in order to saponify this added oleic acid and alcohol thus presenting a wasteful and ridiculous formula.

In Mucilage of Acacia, the Eighth Revision directed the use of 33 percent of lime water in order to overcome the natural acidity of acacia. The lime water content at times created incompatibility as, for example, when the mucilage of acacia was directed to be used to suspend calomel. The revision rightly omits the lime water and directs that this mucilage should be frequently made and not dispensed if it has deteriorated.

In Oleate of Mercury, the use of alcohol in place of water will shorten the time required and diminish the danger of reduction of the mercury.

The change made in the formula for Soft Soap, cottonseed oil being directed in place of linseed oil has, likewise, been dictated by economic reasons rather than by scientific. The new formula is defective and the product is deficient in that very necessary property of a soap, namely, detergency.

In the Mint Spirits, the respective peppermint or spearmint, used for coloring and clarifying, is first washed with water which removes the brown and yellow colorings as well as much extraneous dirt and the resulting spirit is more uniformly of a bright green color.

The acid content of Syrup of Hydriodic Acid was slightly increased so as to make the official syrup not below the strength claimed for some proprietary syrups.

In Syrup of Calcium Lactophosphate and in Syrup of Hypophosphites, the addition of 50 mils of glycerin to the liter adds materially to the stability of these.

In Syrup of Wild Cherry, we note a return to the method of adding the glycerin to the first portion of the menstruum instead of to the percolate. While this procedure may yield a deeper colored syrup that may be richer in tannin, it is doubted if this should be the proper aim and it is questioned whether the hydrocyanic acid content is not actually diminished.

In the Ointments, a few changes are noteworthy. Such minor changes as those made in Belladonna Ointment and in Diluted Mercurial Ointment are readily understood and will cause little comment. In Diachylon Ointment, white petrolatum is substituted for olive oil which yielded an ointment of too fluid a consistence. Ointment of Phenol is reduced from 3 percent phenol to about 2 percent and ointment is directed as the base instead of white petrolatum. The changes made in this formula may cause some trouble with customers to whom it may be difficult to explain the difference in the appearance of carbolic ointment.

The elimination of all Wines from the Pharmacopoeia was probably due to a misunderstanding of the requirement of the Brussels International Protocol. Physicians will continue to prescribe the Wines of Antimony, Colchicum, Ipecac, etc., and pharmacists will furnish these as heretofore. In the formula for Compound Mixture of Glycyrrhiza, the substitution of the equivalent amount of tartar emetic dissolved in water for the wine of antimony is directed and this was the only change in the official formulas necessitated by the deletion of the class of wines from the Pharmacopoeia.

BOTANICAL NOMENCLATURE OF THE U. S. P. IX.*

BY OLIVER ATKINS FARWELL.

A careful examination of the botanical nomenclature of the new revision of the Pharmacopoeia discloses the fact that the authors did not invariably follow either the "Vienna" code or the "American;" but either one or the other as it suited their convenience, and in some instances neither. In most instances where forms of a species, other than the type, are admitted, the trinomial is used; as *Glycyrrhiza glabra glandulifera;* in many cases, however, the "variety" is used as in *Melaleuca Leucadendron* var. *Cajeputi.* The former typifies the American code, which does not recognize the rank of *variety*—the trinomial being the method of designating a *sub-species;* the latter is characteristic of the Vienna system of nomenclature. The system of considering a variation of a species as a subspecies and designating it by a trinomial (the American Code) should be discontinued, as an application of the rule simply makes authors, who do not follow the code and the older authors of a bygone day, express a classification which they had no intention or thought of conveying.

Apparently the American code has been the guiding star of the nomenclatorial committee, but it has balked when a strict application of the rules would have produced a repeating binomial, one where the generic and specific names are the same, as *Zingiber officinale* for *Zingiber Zingiber.* Geographical specific names are decapitalized, a feature that is greatly to be deprecated. Such names are proper names in just the same manner as are specific names derived from old generic names or from the names of persons and they should not be treated differently. Just so long as English type is used to express a binomial, just so long should the rules governing English grammar and syntax be followed. If decapitalization is desired, the binomial should be expressed in Roman type, *i. e.*, in small capitals. There are a good many exceptions to the rule that the name of a family of plants should end in "aceæ," as *Gramineæ, Leguminosæ.* In each instance the ending should be changed to "aceæ" so as not to conflict with the nomenclature of other botanical categories.

The following notes and suggestions may be of service in the preparation of future editions:

Agar.—This article is said to be the dried mucilaginous substance obtained from the *Gracilaria lichenoides* Greville and other algæ of the sea coast of Asia, especially from species of *Gelidium* and of *Gloiopeltis.* It is generally conceded that the agar derived from *Gracilaria lichenoides* is the dried, *unaltered thallus,* and is known to the pharmaceutical and commercial worlds as Ceylon agar. Some species of *Gloiopeltis* yield a glue while others are used as a food. Japanese agar is derived from *Gelidium corneum* (Hudson) Lamour, *G. cartilagineum* Gaillon and perhaps from other species of *Gelidium.* Japanese agar is a gelatinous substance, *gelose,* extracted from the algæ. The commercial agar brought to this country for medicinal purposes comes from Japan and is not an unaltered thallus but an extracted gelatinous substance, and therefore corresponds to the article known as Japanese agar as above described. The definition should be corrected to exclude species of *Gracilaria* and *Gloiopeltis* as sources of origin of agar. The writer of this paper can see no good reason for substituting a class name for this

* Reprinted from *The Druggists' Circular,* April 1917.

alga instead of the family name. "Fam. Gelidiaceæ" should be used instead of "Class Rhodophyceæ."

Amygdala Dulcis, Oleum Amygdalæ Amaræ, Oleum Amygdalæ Expressum.—The sweet almond is said to be derived from *Prunus Amygdalus dulcis* De Candolle and the bitter almond from *Prunus Amygdalus amara* De Candolle. De Candolle is not the author of the above combinations. He did not name them under *Prunus* but under *Amygdalus* and as varieties, not as subspecies; the citation of De Candolle as the author of the combinations is, therefore, without authority. The better way is to keep *Amygdalus* separate from *Prunus*. The bitter almond would then be derived from *Amygdalus communis* Linné and the Sweet, from *Amygdalus communis* Linné var. *dulcis* (Miller) De Candolle. It is not necessary to use the variety *amara* for the bitter almond as it is but a synonym of the species. However, if they are to be retained under *Prunus*, *P. Amygdalus* Stokes is not the proper name for the species under any code of nomenclature now followed, all of which recognize the law of priority. Hudson, in 1778, published a *Prunus communis* to include *P. domestica* Lin., *P. spinosa* Lin., and *P. insititia* Lin., all of which antedate the species of Hudson; consequently Hudson's *P. communis* is but a synonym that can never be reinstated and therefore cannot bar the legitimate use of the name for another species. According to the laws of priority the proper designation of the almonds under *Prunus* is herewith given.

Prunus Communis (Lin.) Farwell (nov. comb.).

Amygdalus communis Lin. Sp. Pl. 473, 1753.

Amygdalus communis Lin. var. amara, D. C. Fl. Fr. IV 486, 1805 and Prod. II, 530, 1825.

Prunus Communis (Lin.) N. Farwell var. Dulcis (Mill.) Farwell (nov. comb.).

Amygdalus dulcis Miller Dict. Ed. 8, No. 2, 1768.

Amygdalus communis Lin. var. *dulcis* D. C. ll. cc.

Aspidium.—The oldest post-Linnæan generic name for the male fern is *Filix* (Fuchs) Hill. The proper combination for the species designated are *Filix Filix-mas* (Lin.) Farwell and *Filix marginalis* (Lin.) Farwell.

Aspidosperma.—The specific name *quebracho blanco* is written as two words, the hyphen being omitted; this doubtless is a typographical error; nevertheless, as written, it becomes a trinomial and, under the American Code, indicates that the drug is derived from a subspecies *blanco* of the species *Aspidosperma Quebracho*.

Aurantii Dulcis Cortex, Oleum Aurantii.—The peel and oil of the sweet orange are said to be derived from the *Citrus Aurantium Sinensis* Gallesio. Just why this name should be attributed to Gallesio is a mystery; Linnæus (Sp. Pl. 783, 1753) was the first to use it and he should be quoted as the author. It might be better to consider this as a distinct species under the name *Citrus Sinensis* (Lin.) Osbeck.

Aurantii Amaræ Cortex.—The bitter orange peel is said to be derived from *Citrus Aurantium amara* (Lin.) Why any varietal or subspecific name should be used is a question that has not been explained. The bitter orange (*Citrus vulgaris* Risso, *Citrus Bigaradia* Loisel, and *Citrus Aurantium amara*) is the exact type of the Linnæan *Citrus Aurantium*. No further designation is necessary.

Cannabis.—Cannabis is said to be derived from *Cannabis sativa* Linné or its

variety *Indica* Lamarck. We have American, Mexican, African, Indian, etc., cannabis; but these are geographical or commercial terms to designate the country of origin. Why it should be necessary does not appear, as the species from one country, when properly prepared, is as active as from another. So we have the pharmaceutical term cannabis sativa variety Indica (not botanical) to designate the Indian grown drug. To quote Lamarck as the author of a botanical variety, *Indica* is absurd; there has never been, in so far as I have been able to ascertain, a properly described botanical variety under the name of *Indica*. Lamarck described a species, *Cannabis Indica*, which was later reduced to synonymy, this form not being given any recognized rank of any degree.

Cardamomi Semen.—The botanical origin is given as *Elettaria Cardamomum* White et Maton. The correct combination and author citation under this genus is *Elettaria Cardamomum* (Lin.) Maton and is based on the *Amomum Cardamomum* Lin. Sp. Pl. 1, 1753. The authors of the Index, Kewensis and K. Schumann in "Das Pflanzenreich" IV, No. 46, p. 238, cite the Linnæan binomial as *Amomum Cardamon* and apply it to the Java cardamom plant. A reference to the Species Plantarum will show that Linnæus did not use the specific name *Cardamom* but wrote *Cardamom*, which is an abbreviation for *Cardamomum* just as *gran. parad.* on the next page (2) is for *Granum-paradisi*. I have not been able to ascertain who was the first author to use the specific name *Cardamon*, but Linnæus certainly did not use it. The genus *Amomum* was founded by Linnæus in 1736 on the small cardamoms of the shops. The ginger was included but no part of the description was drawn from it. It is therefore very doubtful if the name can rightfully be used for any other plant.

Certain elements of three distinct species entered into the make-up of the Linnæan *Amomom Cardamomum*, but the confusion over these species was not original with Linnæus. His description was taken from his earlier Flora Zeylanica, which also is the first reference given after the description in the Species Plantarum. A reference to the Flora Zeylanica develops the fact that this species, as well as the genus *Amomum*, as above shown, was founded on the small cardamoms of the shops. The only correct interpretation of the genus *Amomum* would be to retain it for the plant on which it was founded, hence the proper name for our cardamoms is *Amomum Cardamomum* Lin. The genus to which Roscoe in 1806 transferred the name *Amomum* should probably be known as *Meistera* Giseke (1792).

Caryophyllus, Oleum Caryophylli.—The proper authority for "*Eugenia aromatica* (Linné)" is "Baillon" not "O. Kuntze" as given in the Pharmacopœia. Baillon made the combination in his History of Plants, Vol. VI, pp. 311 and 345, 1877, 14 years ahead of O. Kuntze. But this name is not tenable because of an earlier, valid species of the same name, *Eugenia aromatica* Berg. 1854. The proper name under *Eugenia* is *Eugenia caryophyllata* Thunb. The synonym "Jambosa Caryophyllus (Sprengel) Niedenzu" should be enclosed in marks of parenthesis.

Cinnamomum Zeylanicum.—The proper binomial for this product is *Cinnamomum Cinnamomum* (Linné) Karsten.

Eriodictyon.—The correct authority for "*Eriodictyon Californicum* (Hooker and Arnott)" is "Torrey" not "Greene" as given in the Pharmacopoeia.

Eucalyptol, Eucalyptus, Oleum Eucalypti.—The specific name "Globulus" should not be capitalized; it is not a proper name.

Fæniculum, Oleum Fæniculi.—The correct name for the source of these drugs *is Fæniculum Fæniculum* (Linné) Karsten.

Gelsemium.—The proper authority for the binomial "*Gelsemium sempervirens* (Linné)" is "Persoon" not "Aiton filius," the former having made the combination in 1805, six years ahead of the latter.

Glycyrrhiza.—The designation *Glycrrhiza glabra* Linné is sufficient to indicate the source for Spanish licorice. The custom of making a species and indefinite entity and then giving varietal name to what may be considered the typical form cannot be too severely censured. Nothing is to be gained by it. ("Waldstein et Kitaibel") should be inserted between "*glandulifera*" and "*Regel et Herder*" in order to make the author citation perfect.

Ipecacuanha.—The source of ipecac is given as *Cephælis Ipecacuanha* (Brotero) A. Richard and *Cephælis acuminata* Karsten. The oldest generic name for the ipecacs is *Ouragoga*, published by Linnæus in 1737 in the first edition of the Genera Plantarum, 378, and in Hort. Cliff., 486. Also as a post Linnæan name in December 1774, in a dissertation on *Viola Ipecacuanha* by Daniele Wickman, later appearing in Schreber's edition of the Amœnitates Academicæ in 1785, Vol. VIII, 240, 241, 243. In the index of the first edition of the Genera Plantarum the name was listed as *Uragoga* and in this form was adopted by Baillon and later by O. Kuntze to include not only the ipecacs (*Cephælis*) but also a number of closely allied genera (*Psychotria, Palicourea, Mapouria*, etc.) K. Schumann, in Engler and Prantl's Pflanzenfamilien used the name for the genus *Cephælis* alone, restoring to generic rank those genera that had been reduced by Baillon and by Kuntze. "*Uragoga,*" as spelled by these authors, is not a valid post Linnæan name. *Evea* Aublet 1775 has been taken up recently by Standley for *Cephælis*, but this is later by a fraction of a year than *Ouragoga* and therefore is not tenable. The *Uragoga acuminata* (Bentham) OK. is a species of *Psychotria* and does not apply to the Carthagena ipecac. The proper combinations to designate the ipecacs are as herewith given.

Ouragoga Ipecacuanha.—(Brotero) Farwell (nov. comb.).

Callicocca Ipecacuanha.—Brot. Trans. Linn. Soc. VI, 137, pl. 11, 1802.

Ouragoga Acuminata.—Karsten Farwell (nov. comb.).

Cephælis Acuminata.—(Karsten), Deutsche Flora p. 1196, 1880–1883.

Jalapa.—The proper botanical designation for this drug is *Exogonium Jalapa* (Nuttall and Coxe) Baillon. Nuttall was the first author to name the jalap of commerce and medicine; he named it *Ipomœa Jalapa* (Lin.) Pursch, Nuttall's name, if the plant is to remain in *Ipomœa*, as some authors maintain, must give way to next oldest which is *Ipomœa Purga* (Wenderoth) Hayne. If maintained as distinct from *Ipomœa*, as most authors contend, Nuttall's earlier name is available and should be adopted.

Limonis Cortex, Oleum Limonis.—The botanical source of the lemon is *Citrus Medica* Lin. var. *Limon* Lin. This is the oldest name and should be adopted in preference to the later one of Hooker filius; *Citrus Limonia* Osbeck, if as a distinct species.

Maltum.—The botanical source is given as *Hordeum sativum* Jessen. This is but a synonym and should give way to the valid name, *Hordeum vulgare* Lin.

Mentha Viridis, Oleum Menthæ Viridis.—The botanical origin of this drug is said to be *Mentha spicata* Lin. (*M. viridis* Lin.). There seems to be little or no excuse for making *M. viridis* Lin. a synonym of *M. spicata* Lin. or attributing the source of garden spearmint to the latter species. In the Species Plantarum, ed. I, Linnæus had *M. spicata* with three named varieties, *viridis*, *longifolia*, and *rotundifolia*. In the second ed., *M. spicata* with the variety *longifolia*, becomes *M. sylvestris* and the varieties *viridis* and *rotundifolia* are elevated to specific rank under their respective names. *M. spicata* Lin. is, therefore, the older and valid name for the plant that has been more commonly known as *M. sylvestris* and the spearmint of cultivation and of pharmacy is *M. viridis*. *M. spicata* should be dropped.

Myrrha.—Myrrh is said to come from one or more species of *Commiphora*. The oldest name and consequently the valid one is *Balsamea*. It should be adopted.

Oleum Cajuputi.—The botanical source of this oil is said to be *Melaleuca Leucadendron* Linné, especially the variety *Cajuputi* Roxburgh and the variety *minor* Smith. Neither Smith nor Roxburgh are the authors of the varieties mentioned; they published their respective names as specific names. The correct author citation will appear in the synonymy to be given below. The oldest post-Linnæan name for this group of plants is *Kajubuti* Adanson Fam. Pl. II, Index, page 530, 1763. On page 84, vol. 2, Adanson has the generic name *Caju puti* as two distinct words, which, of course, is not tenable as a valid generic name; but on page 530 in the Index he has *Kajubuti* with a reference to *Rumph 2 t. 16* and to page 84, where the description is to be found. The proper binomials are as herewith given.

Kajuputi Leucadendron.—(Lin.) Farwell (nov. comb.).

Myrtus Leucadendra.—Lin. Syst. ed. 10, 1056, 1759.

Kajuputi Leucadendron.—(Lin.) Farwell variety *Angustifolia* (Lin. fil.) Farwell (nov. comb.).

Melaleuca Leucadendron Lin. var. B. *angustifolia* Lin. fil. Suppl. Pl., 342, 1781.

Melaleuca viridiflora Sol. in Gærtn. Fruct. 1, 175 t. 35, 1788.

Kajuputi Leucadendron (Lin.) Farwell variety *Minor* (Sm.) Farwell (nov. comb.).

Melaleuca minor Sm. Rees, Cycl. 23, 1797.

Melaleuca Cajuputi Roxburgh Fl. Ind. III, 394, 1832.

Melaleuca Leucadendron Lin. var. *minor* (Sm.) Duthie in Hk. f. Fl. Brit. Ind. II, 465, 1778.

Melaleuca Leucadendron Lin. variety *Cajeputi* (Roxb.) Niedenzu in Engler and Prantl's Pflanzenfamilien III Teil, 7 abt. 95 and 96, 1892.

The species is founded on the *Arbor alba* Rumph. 2, 72, t. 16, and the second variety on the *Arbor alba minor* Rumph, 2, 76, t. 17 fig. 1. Some authors consider the two varieties named above as identical, in which case the first named would be the valid one as it is the oldest. The second variety is the one that produces the greater part of the commercial cajuput oil.

Oleum Chenopodii.—The source is given as *Chenopodium ambrosioides anthelminticum* Linné. The author citation for the variety *anthelminticum* is (Linné) A. Gray. Linnæus is not the author of a subspecies *anthelminticum*.

Oleum Lavandulæ.—The valid designation of the lavender plant is *Lavandula Spica* Linné, not L. *vera* D. C., which is a later synonym. In any event *L. vera* D. C. is not the name to use; the earliest name, after that of Linnæus', in case his should be discarded for which there is no excuse, is *Lavendula angustifolia*, Miller.

Oleum Pimentæ.—Pimenta Pimenta (Linné) Lyons is the valid binomial for the source of this product; not *B. officinalis* Lindley.

Oleum Sassafras, Sassafras.—Sassafras Sassafras (Linné) Karsten is the proper combination to designate the sassafras.

Oleum Sesami.—The proper binomial to designate the sesame is *Sesamum orientale* Lin.; not *S. Indicum* Lin.

Petroselinum.—Petroselinum hortense Hoffman has precedence over *Petroselinum sativum* Hoffman but the valid binomial is *Petroselinum Petroselinum* (Linné) Karsten.

Sparteinæ Sulphas.—The specific name in *Cytisus scoparius* (Linné) Linké should be decapitalized. It is not an old generic name or a vernacular name, just an adjective.

Taraxacum.—The botanical origin is given as *Taraxacum officinale* Weber. The proper designation under taraxacum is *Taraxacum Taraxacum* (Linné) Karsten. But *Taraxacum* is not the oldest generic name and for that reason is not the valid one. *Leontodon* Lin. was founded in 1737 on the common dandelion, the *Dens Leonis* of the older botanists. As the genus appeared in the first edition of the Species Plantarum, it must be accepted for the species on which it was founded, the dandelion, which is *Leontodon Taraxacum* Linné. The genus generally known as *Leontodon* of late years is *Virea* Adanson.

Ulmus.—The source of origin is given as *Ulmus fulva* Mx. "*Ulmus pubescens* Walter" is generally considered to apply to the same species. and being the older name by 15 years should be adopted.

Xanthoxylum.—The proper spelling for this generic name is *Zanthoxylum.* Linnæus used Z for the initial letter, but Miller changed it to X. The original spelling should be restored.

Zingiber.—The source of origin is given as *Zingiber officinale* Roscoe. The proper appellation is *Zingiber Zingiber* (Linné) Karsten.

In order to bring about a uniformity in family nomenclature, each name ending in "aceæ" and the oldest family name being used, the following changes are necessary:

Gramineæ	to	Graminaceæ	Ternstrœmiaceæ	to	Camelliaceæ
Palmæ	to	Palmaceæ	Guttiferæ	to	Hypericaceæ
Fagaceæ	to	Castaneaceæ	Punicaceæ	to	Granataceæ
Moraceæ	to	Lupulaceæ	Umbelliferæ	to	Umbellataceæ
Polygonaceæ	to	Persicariaceæ	Oleaceæ	to	Jasminaceæ
Chenopodiaceæ	to	Blitaceæ	Loganiaceæ	to	Strychnaceæ
Cruciferæ	to	Cruciferaceæ	Hydrophyllaceæ	to	Hydroleaceæ
Leguminosæ	to	Leguminaceæ	Labiatæ	to	Labiataceæ
Euphorbiaceæ	to	Tithymalaceæ	Rubiaceæ	to	Aparinaceæ
Rhamnaceæ	to	Zizyphaceæ	Cucurbitaceæ	to	Bryoniaceæ
Sterculiaceæ	to	Cacaoaceæ	Compositæ	to	Compositaceæ

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK.

A complete list of these Proposed Formulas since February 1912 was published in an index in the December 1916 number of the JOURNAL. The Committee will continue its work in monthly instalments in this Department of the JOURNAL. Members of the A. Ph. A. are earnestly requested to send suitable formulas and also criticisms of those published to the Chairman.

Otto Raubenheimer, Brooklyn, N. Y.

No. 565.

PULVIS STRAMONII NITRATUS.

Nitrated Stramonium Powder.

Sir James Sawyer's Asthma Powder.

Modified.

B. P. Cx.

Stramonium Leaves	50 Gm.
Potassium Nitrate	
Anise, of each	25 Gm.

Mix the powdered ingredients.

Contributed by the Chairman:

No. 566.

PARENOL.

Solid Parenol.

B. P. Cx.

Petrolatum, white or yellow	65 Gm.
Wool Fat	15 Gm.
Distilled Water, warm, a sufficient quantity,	
To make	100 Gm.

Melt the petrolatum and wool fat, pour the mixture into a warm mortar, and add gradually the distilled water.

Parenol is a stable emulsion of soft paraffin, which is absorbed readily by the skin, and causes no irritation. It does not become rancid on keeping, and forms a useful vehicle for the application of various medicaments, for which rapid absorption is desired. Parenol can be made to take up more than its own weight of water, and mixes readily with all fats.

No. 567.

PARENOL LIQUIDUM.

Liquid Parenol.

B. P. Cx.

Liquid Petrolatum	70 mils
White Wax	5 Gm.
Distilled Water, warm, a sufficient quantity,	
To make	100 mils

Melt the white wax in the liquid petrolatum, pour the mixture into a warm mortar, and add gradually the distilled water.

Liquid parenol is a neutral liniment which is readily absorbed by the skin. It possesses properties similar to those of solid parenol, and will be found especially useful in the treatment of skin diseases, for lubricating catheters, or as a vehicle for injections.

No. 568.

PASTA ICHTHYOLIS.

Pasta Ichthamolis.

Ichthyol Paste.

Ammonium Ichthosulphonate Paste.

B. P. Cx.

Ammonium Ichthosulphonate	10 Gm.
Gelatin	10 Gm.
Glycerin	60 Gm.
Distilled Water	25 mils

Soak the gelatin in the distilled water until softened; then melt on a water-bath, add the glycerin, and finally the ammonium ichthosulphonate.

Used for application to the skin in acne, psoriasis, and eczema. The jelly is melted by standing in hot water, and applied to the skin with a stiff brush, the paste being afterwards covered with a thin layer of cotton wool.

Ichthyol or Ammonium Ichthosulphonate or Sulpho-ichthyolate or Ichthyol-Ammonium or Ichthamol consist of the ammonium salts, of the sulphonic acids prepared from ichthyol—the oily product of the destructive distillation of a greyish bituminous schist ("oelstein" or stinkstein") found in the Karwendel Mountains, which separate Bavaria from Tyrol, the bulk of the crude oil, or ichthyol, being produced in the vicinity of the village of Seefeld. The schist is composed largely of the remains of fishes and other marine creatures, and yields from 1 to 10 percent of oil, which contains about $2^1/_2$ percent of sulphur; on treating the oil with sulphuric acid, ichthosulphonic acid is formed, and this, when neutralized with ammonia, yields impure ammonium ichthosulphonate, the substance which is known in commerce under various trivial names.

No. 569.

PASTA ICHTHYOLIS COMPOSITA.

Pasta Ichthamolis Composita.

Compound Ichthyol Paste.

Compound Ichthamol Paste.

Compound Ammonium Ichthosulphonate Paste.

Ammonium Ichthosulphonate	25 Gm.
Phenol	2.5 Gm.
Starch, in powder	50 Gm.
Distilled Water, warm	22.5 mils

Dissolve the ammonium ichthosulphonate and phenol in the warm water, and mix with the starch.

This paste is used in acne rosacea; it is painted on the skin and allowed to dry.

No. 570.

PASTA IODI ET AMYLI.

Iodine and Starch Paste.

Pasta Amyli Iodata.

Idolized Starch Paste.

Tilbury Fox Paste.

Starch, in powder	10 Gm.
Glycerin	20 mils
Lugol's Solution of Iodine	10 mils
Distilled Water, a sufficient quantity, To make	100 Gm.

Boil together the starch, glycerin, and distilled water; cool, and add the solution of iodine; add sufficient water to produce 100 Gm. and mix well.

This paste is applied on lint to syphilitic sores and ulcers.

No. 571.

PASTA POTASSAE ET CALCIS.

Potassa and Lime Paste.

Pasta Viennensis.

Vienna Paste.

Potassa with Lime, N. F. IV.

Alcohol, sufficient to make a paste.

This paste was formerly used as a caustic for malignant growths. In place of alcohol, glycerin is sometimes used.

No. 572.

PASTA SODAE ET CALCIS.

Soda and Lime Paste.

Pasta Londinensis.

London Paste.

Soda with Lime, N. F. IV.

Water, sufficient to make a paste.

Said to be a less painful application than Vienna Paste.

Both London and Vienna Pastes should be freshly prepared when needed.

No. 573

PASTA ZINCI ET GELATINI.

Zinc and Gelatin Paste.

Gelatinum Zinci.

Unna's Paste.

Gelatin	15 Gm.
Distilled Water	35 mils
Zinc Oxide	15 Gm.
Glycerin	35 Gm.

Soften the gelatin by soaking in the water; then add the glycerin and zinc oxide, previously rubbed together to a smooth paste. Heat the mixture on a water-bath, stirring until the gelatin is dissolved and a product of uniform consistence is obtained. Pour into a flat dish or tray to solidify.

When required for use, this paste is melted on a water-bath, and applied to the skin with a stiff brush; the part may then be covered with cotton wool or lint. It is soothing application for eczema and other irritable conditions of the skin, and is especially valuable in the treatment of varicose ulcers.

See also Glycerogelatinum Zinci, N. F. IV.

No. 574.

PASTA ZINCI ET ICHTHYOLIS.

Zinc and Ichthyol Paste.

Zinc and Ammonium Ichthosulphonate Paste.

Gelatinum Zinci et Ichthyolis.

Zinc Oxide	10 Gm.
Ammonium Ichthosulphonate	2 Gm.
Gelatin	16 Gm.
Glycerin	32 Gm.
Distilled Water, a sufficient quantity, To make	100 Gm.

Soften the gelatin by soaking in water, then add the glycerin, zinc oxide, and ammonium ichthosulphonate, previously rubbed together to a smooth paste. Heat on a water-bath till the gelatin is dissolved and the product is of uniform consistence. Pour into a flat dish to solidify.

This paste is used for the same purposes as Pasta Zinci et Gelatini.

No. 575.

ACETUM CANTHARIDINI.

Vinegar of Cantharidin.

B. P. Cx.

Cantharidin	0.05 Gm.
Glacial Acetic Acid	10 mils
Acetic Acid, a sufficient quantity, To make	100 mils

Mix the glacial acetic acid with the cantharidin, add 85 mils of acetic acid, dissolve on a water-bath, and add sufficient acetic acid to make, when cold, 100 mils.

Vinegar of cantharidin is recommended for use instead of Acetum Cantharidis, as it is of uniform strength.

No. 576.

ACETUM CANTHARIDIS.

Vinegar of Cantharides.

B. P. Cx.

Cantharides, bruised	10 Gm.
Glacial Acetic Acid	
Distilled Water, of each a sufficient quantity,	
To make	100 mils

Extract the cantharides by maceration and subsequent percolation with glacial acetic acid mixed with an equal volume of distilled water.

Vinegar of cantharides is used generally, in a dilute form, to stimulate the growth of the hair (see Cantharis) but it should not be prescribed in ammoniacal hair washes. As the quantity of cantharidin in this preparation is apt to vary, Actum Cantharidini has been suggested as an alternative preparation.

No. 577.

ACETUM ODORATUM.

Toilet Vinegar.

B. P. Cx.

Oil of Bergamot	0.5 mil
Oil of Cassia	0.1 mil
Oil of Clove	0.3 mil
Oil of Lavender	0.2 mil
Oil of Lemon	0.5 mil
Tincture of Tolu	1.0 mil
Tincture of Benzoin	10 mils
Alcohol	50 mils
Glacial Acetic Acid	4 mils
Distilled Water, a sufficient quantity,	
To make	100 mils

Mix the oils and tinctures with the alcohol; then add the acid and water, shake well, and filter.

Toilet Vinegar is used as a deodorant by sprinkling about the sick room; it is mixed with water for washing in the bath or hand-basin; a few drops are inhaled from the handkerchief as a restorative, or applied to the forehead to relieve headache.

No. 578.

CERA ASEPTICA.

Aseptic Wax.

B. P. Cx.

White Beeswax	87 Gm.
Almond Oil	12 Gm.
Salicylic Acid	1 Gm.

Melt the beeswax in the oil and strain through muslin, add the salicyclic acid, and heat to 150° on an oil-bath. Keep in sterilized bottles, covered with an aqueous solution (1 in 500) of mercuric chloride.

Aseptic wax is used to arrest haemorrhage from cranial bones by smearing it over the bleeding surface, and for similar surgical purposes.

No. 579.

CERATUM GALENI.

Galen's Cerate.

Cold Cream. Parogen Cold Cream.

B. P. Cx.

White Petrolatum	12 Gm.
White Beeswax	12 Gm.
Almond Oil	50 mils
Borax	1 Gm.
Oil of Rose	0.10 mil
Rose Water	25 mils

Melt the wax in the oil and dissolve the borax in the rose water by the aid of gentle heat. When both solutions are at about the same temperature, add the aqueous liquid gradually to the wax and oil, and stir until the mixture stiffens. Pour into a slightly warmed mortar containing the petrolatum, stirring until mixed. Add sufficient oil of rose to perfume, and stir till cold.

The above formula is especially suitable for toilet use. If a similar preparation be required as a basis for medicaments the borax should be omitted, or preference should be given to the official Unguentum Aquae Rosae.

No. 580.

CERATUM PARAFFINI.

Paraffin Cerate.

Petrolatum Cerate.

B. P. Cx.

Beeswax	6 Gm.
Petrolatum	94 Gm.

Melt together and stir constantly as the mixture cools. Paraffin cerate can be incorporated with half its weight with water.

This cerate may be prepared with the yellow or white varieties of beeswax and petrolatum; if required as a basis of a white ointment the white beeswax and petrolatum should be employed.

No. 581.

CERATUM PLUMBI.

Lead Cerate.

Pearson's Cerate.

B. P. Cx.

Lead Plaster	50 Gm.
Yellow Beeswax	12.5 Gm.
Almond Oil	37.5 Gm.

Melt the beeswax in the oil, strain through muslin, add the lead plaster, heat the mixture until the plaster is melted, and stir until cold.

Lead cerate is a soothing and mildly astringent application in eczema and other irritable conditions of the skin.

No. 582.

CERATUM PLUMBI COMPOSITUM.

Compound Lead Cerate.

B. P. Cx.

Camphor	0.5 Gm.
Yellow Beeswax	23.5 Gm.
Olive Oil	58.5 Gm.
Solution of Lead Subacetate	17.5 Gm.

Melt the beeswax in the oil, strain through muslin, then add the camphor and, finally, the solution of lead subacetate, stirring till cold.

Compound lead cerate is useful for application to chilblains and other inflamed surfaces.

Contributed by Ernst Bilhuber, N. Y. City:

ANTHRASOL PREPARATIONS.

Anthrasol is a purified colorless coal tar, freed from pitch, pyridine bases and coloring matter and mixed with juniper tar (oil of cade), to prevent separation of solid constituents and scented with oil of peppermint. It is a thin, mobile, light yellow oil which does not stain either skin or linen. It is miscible with dehydrated alcohol, acetone, fats and oils, but is insoluble in water.

Anthrasol is an antiseptic and parasiticide. Useful in chronic or subacute skin diseases, various forms of eczema, as a hair restorative and for the removal of dandruff. See also N. N. R. for particulars.

No. 583.

ANTHRASOL DUSTING POWDER.

Anthrasol	5 Gm.
Zinc Oxide	50 Gm.
Talc	50 Gm.

Against perspiration of the feet as well as for hyperidrosis in general and chafing of the skin. Used in the German army.

No. 584.

ANTHRASOL HAIR TONIC.

Anthrasol	3 mils
Glycerin	5 mils
Oil of Neroli	5 drops
Tincture Soft Soap	30 mils
Alcohol, a sufficient quantity,	
To make	150 mils

Very useful in seborrhea capitis and for the quick removal of dandruff.

EURESOL PREPARATIONS.

Euresol is Resorcinol Monacetate or Resorcinyl Acetate $CH_3COO(C_6H_4OH)$ or the acetic acid ester of resorcinol.

It is a thick, honey yellow, oily liquid, B. Pt. 283° C. and soluble in alcohol and acetone. Its action is similar to that of resorcinol, but milder and more lasting on account of the gradual liberation of the phenol.

Useful in acne, sycosis, seborrhea and chilblains.

Euresol pro Capillis is Euresol, which is perfumed for use in hair lotions. For particulars, see N. N. R.

No. 585.

EURESOL HAIR LOTION.

Drs. White and Elliot.

Euresol	8 mils
Mercuric Chloride	0.24 Gm.
Spirit Formic Acid N. F.	30 mils
Castor Oil	4 mils
Alcohol, a sufficient quantity,	
To make	200 mils

Apply to scalp every morning against dandruff and baldness.

No. 586.

EURESOL HAIR TONIC.

Dr. P. Jacob.

Euresol pro Capillis	10 mils
Alcohol	125 mils
Distilled Water, a sufficient quantity,	
To make	250 mils

If the scalp is very dry, it is advisable to add 5 mils of Liquid Petrolatum to this Hair Tonic, or to use Euresol Hair Pomade.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CHICAGO.

The regular monthly meeting of the Chicago Branch, American Pharmaceutical Association, was held May 25, 1917, at Kuntz-Remlers.

The discussion of the evening centered about the report of the committee named at the April meeting to formulate a plan by which the pharmacist can most effectively do his share in the great war.

The report of this committee was summarized as follows:

1. Representation on the Advisory Commission of the National Council of Defense.
2. Wider employment as pharmacist in the Army, the Navy and the Hospital Corps.
3. Pharmaceutical service for the Red Cross units.
4. Pharmaceutical service for soldiers' dependent families.
5. Meeting the war taxes.
6. Collection and cultivation of medicinal plants.
7. Conservation of medicines.

Of the very interesting discussion, the following items will present a summary:

1. The formation of a committee representing the pharmaceutical manufacturing houses to assist the Advisory Committee of the National Council of Defense in the buying of pharmaceutical supplies, as was recently announced in the journals, was heartily commended, and it was the opinion of the meeting that this committee would insure the supply of pharmaceuticals to the government with the least disturbance of regular conditions.

The employment by the Council of Defense of the pharmacists and the pharmacologists in the government service at Washington for advice and assistance along scientific lines in their own professions, was also approved at the meeting.

Yet it was the expression of the meeting that the government should give a fuller recognition to pharmacy by placing a representative of scientific pharmacy on the Advisory Commission. Such a man should be a leader in pharmaceutical research, the scientific advisor along pharmaceutical lines and the representative of the pharmacists of the Army and Navy in the war councils of our nation.

2. Pharmacy as such is certainly entitled to a definite position in the medical corps of the Army and Navy and the hospital service, and the American Pharmaceutical Association is urged to undertake the securing of this recognition of pharmacy by the government. Trained pharmacists should be placed in charge of the preparation, standardization and distribution of all medicines intended for use of the Army and Navy. Such men must be given rank of officers and be organized into a definite corps known as the pharmaceutical corps, for such a corps is just as essential to complete medical service as the ordinance corps is to the line.

3. Pharmacists should volunteer to render service in the Red Cross units even though the ability and service of the pharmacist is not fully recognized by the surgeon in charge of the unit.

4. Pharmaceutical service by the retail pharmacist for the dependent families of the enlisted men should be freely offered. While it is true that the support of the dependent families of enlisted men must be undertaken by the National Government, yet where opportunity offers for the pharmacist to do his bit along these lines, as is now the case in Chicago, he should respond freely. The plan formulated by Dr. Jacob Frank, Surgeon-General of Illinois, and the Chicago Retail Druggists' Association, to provide pharmaceutical service in connection with medical service for the dependent families of soldiers, was heartily endorsed and commended at the meeting. It provides that any dependent family of an enlisted man shall be furnished with pharmaceutical service upon recommendation of the medical man in charge of the family. A portion of the cost of the medical and pharmaceutical service should be met either by the National Government or from a fund raised by cities or states for the purpose.

5. The question of the proposed stamp taxes and other taxes directly affecting the retailer, received discussion. The stamp tax was universally condemned. If a tax of any

kind must be placed on patent medicines, toilet preparations and sundries, let it be a five percent tax imposed on the value of the goods at the place of manufacture or production. Mr. Storer presented a tabulation to show that under the proposed revenue law as framed by the House of Representatives, Listerine would pay nineteen different taxes. Pharmacists should meet the war taxes in a truly patriotic manner, but we are not in favor of a discriminatory tax and believe that the retail pharmacist should not alone bear all the tax placed on medicines.

E. N. GATHERCOAL, *Secretary.*

NEW YORK.

A special meeting of the New York Branch of the American Pharmaceutical Association was called to order at 8.50 P.M. by President Mayer at the New York College of Pharmacy on May 28, 1917.

Twenty-eight members were present.

President Mayer announced the appointment of Dr. G. Horstmann as successor to our late Treasurer.

Mr. Mayo read the following lines of appreciation of what the late Professor C. Lewis Diehl had done for pharmacy and the American Pharmaceutical Association:

"After a long, a useful and a happy life, Professor C. Lewis Diehl, of Louisville, has been called to eternal rest. He served his country as a soldier and suffered from 1863 down to the time of his death from a wound received at the Battle of Stone River. He was thoroughly informed in every phase of pharmacy, was a linguist of wide knowledge and performed a service for pharmacy in the preparation of the Report on the Progress of Pharmacy in the American Pharmaceutical Association of inestimable value. These reports, covering years, are masterpieces in their clarity, conciseness and accuracy, and show the soundness of his judgment in the choice of materials and in the use made of them. The work done by him in this particular direction was probably the most important single factor in the development and growth of the American Pharmaceutical Association, for through them a collection of the Proceedings of the American Pharmaceutical Association became a complete record of the progress of pharmacy throughout the world.

The same qualities which made him so useful as reporter on the progress of pharmacy also made him an ideal chairman of the committee of revision of the National Formulary. The annual reports he has made as chairman of the committee were always replete with interest and the work itself stands as a lasting monument to his skill as a pharmacist and to his sound judgment as an editor.

Personally Mr. Diehl was one of the most delightful of men, retaining his charming *bonhomie* to the last even when advancing years and increasing infirmities gave adequate excuse of irascibility. In his life American pharmacy has a most brilliant example of what the pharmacist should be, and in his death American pharmacy has suffered an irretrievable loss."

Dr. Lascoff read the following resolutions on the death of Professor Ferguson:

"WHEREAS, By the death of our beloved and distinguished colleague, Professor George A. Ferguson, the New York Branch of the American Pharmaceutical Association has lost a true and noble friend, whose talent, scholarship, and splendid record of life-work will long be remembered by the pharmaceutical profession; therefore be it

"*Resolved*, That we hereby record our profound sense of the loss we have sustained by his death; and our heartfelt sympathy with his surviving family in this their hour of bereavement; and be it further

"*Resolved*, That the Secretary be authorized to spread these resolutions in full upon the minutes of this meeting, and that a suitable copy be prepared and sent to Mrs. Ferguson."

The Secretary read the following few words and resolutions submitted by Professor Arny in appreciation of Mr. Main:

"The New York Branch of the American Pharmaceutical Association shares with the parent organization a great loss in the passing of Thomas F. Main, who departed this life on April 27, 1917.

"Mr. Main was for forty-five years a faithful member of the American Pharmaceutical Association. Quiet and unassuming, he preferred to do his work for the Association as a modest member of a committee rather than in the more spectacular elective offices. Yet the Association singled him out as one of its rarest and best when it honored itself as well as Mr. Main by conferring upon him the honorary presidency for 1912. And again, only last year, when the need of strong men in the Council of the Association was evident, the electorate picked as one of the councillors, Mr. Main, who was called to his reward before he assumed the office.

"In our own Branch, the loss occasioned by the death of Mr. Main is most keenly felt, for it is those like us, who had the privilege of frequent meeting with him, upon whom the blow has fallen most heavily.

"A man without blemish, yet free from cant; a man without enemies, yet a fighter for the right; a man without affectation, yet punctilious as to the finer things of life. Mr. Main stood a dominant figure in pharmacy of this city, state and nation; one who can be illy spared from the work which he performed for our calling.

"In face of the loss of so good, so kindly, so gentle a man, our sorrow should be expressed with a simplicity befitting Mr. Main's unassuming character. The Branch therefore records its great loss in the following terse paragraphs:

'"*Resolved*, That the New York Branch of the American Pharmaceutical Association in sorrow registers its appreciation of the untarnished life of Thomas F. Main, of his devoted services to pharmacy and of his splendid qualities as friend and member.

'"*Resolved*, That this Branch expresses its deep realization of the loss that has come upon it by the death of Mr. Main by a standing vo e of sorrow and by a recording of these resolutions upon its minutes.

"*Resolved*, That a copy of these resolutions be transmitted to the relatives of Mr. Main as a token of our sympathy."'

Professor Hostmann read the following brief history and resolutions in honor of our late Treasurer, Dr. Joseph Weinstein:

"WHEREAS, Our late Treasurer, Joseph Weinstein, was suddenly taken from our midst at our regular meeting on May fourteenth, nineteen hundred and seventeen;

"*Be it resolved*, By the members of the New York Branch of the American Pharmaceutical Association, that as an expression of the deep sense of personal loss felt by the members of this Branch, a page in the minutes be set aside for these resolutions, and

"*Be it Furthermore Resolved*, That the members of the Branch hereby extend to his family their deepest condolences in this hour of their great bereavement; and

"*Be it Furthermore Resolved*, That the Secretary be directed to forward a copy of these resolutions to the family of our deceased member."

All the preceding resolutions were adopted by a rising vote.

Dr. Diekman, Dr. Diner, Dr. Hostmann, Mr. Mayo, Mr. Sher, Dr. Lascoff and Dr. Mayer each added a few touching words regarding some phase of Dr. Weinstein's life, with which they were most familiar, and all were unanimous in their high appreciation of the wonderful character of the deceased.

The Secretary reported the fact that Mr. Dunn was very ill but had requested copies of the memorial resolutions adopted by the Branch at this meeting.

Mr. Mayo moved that in addition a vote of regret at his illness be conveyed to Mr. Dunn. This was seconded and carried.

Dr. Mayer spoke a few words of thanks due to Drs. Diner and Hohmann and Satterthwaite for their prompt services at our last regular meeting.

President Mayer appointed the following committee to take care of the turning over of the books to the new treasurer: Dr. Hostmann, Mr. Sher and Mr. Roller.

The following delegates to conventions were appointed by President Mayer:

American Pharmaceutical Association—Jacob Diner, C. O. Bigelow, Jos. L. Turner; N. Y. State Pharmaceutical Association—George C. Diekman, Frank L. McCartney, J. Leon Lascoff; New Jersey Pharmaceutical Association—Hugo H. Schaefer, Gustav Horstmann, Robert Lehman; National Association Retail Druggists—Jacob H. Rehfuss, August Diehl; Connecticut Pharmaceutical Association—Thomas Latham, Turner F. Currens, Jeannot Hostmann.

Mr. Mayo brought up the question of the drafting of pharmacists and moved for the adoption of the following resolutions:

"WHEREAS, The welfare of the community demands and the laws provide that none but qualified pharmacists shall be permitted to prepare and dispense medicines; and

"WHEREAS, Many qualified pharmacists will be amenable to draft into the Army by conscription; and

"WHEREAS, In many cases such draft may leave the pharmacy without legally qualified men to prepare and dispense medicines, thereby imperilling the lives of the sick; therefore be it

"*Resolved*, By the New York Branch of the American Pharmaceutical Association, that the President of the United States be requested to make provision for the exemption from service under the draft of one qualified pharmacist and of one qualified assistant pharmacist for each pharmacy in the United States, and in addition, one qualified pharmacist and one qualified assistant pharmacist for each fifty prescriptions, or part thereof, compounded

daily in said pharmacy above the first fifty; and be it further

"*Resolved*, That copies of these resolutions be sent to the President of the American Pharmaceutical Association, to the members of the Council, to the presidents of the several branches, and to the members of the National Drug Trade Conference, with a request that they too ask for the exemption of a sufficient number of pharmacists to protect the public welfare by maintaining a competent staff of qualified pharmacists and assistants in every pharmacy in the United States."

This was duly seconded and carried, after some discussion.

The Secretary, in the absence of the Chairman of the Membership Committee, presented the following applications for membership in the parent association: Attilio Graziani, New York City, N. Y.; Leonard Steiger, Hillsdale, N. J.; B. Klatz, Yonkers, N. Y.

The Secretary was directed to follow the usual course with regard to these applications.

The meeting was then ajourned.

The meeting of the Executive Board of the New York Branch of the American Pharmaceutical Association was called to order on May 28, 1917, at the New York College of Pharmacy, at 8.00 P.M., by President Mayer.

There were nine members present.

It was regularly moved and seconded that the regular sessions of the local Branch be divided into two separate and distinct parts—the business meeting to begin at 8.00 P.M., and to close at 8.30 P.M. During this business meeting all committee reports with the exception of that of the Committee on Progress of Pharmacy are to be submitted. Discussion on any part of the business meeting is to be limited to three minutes and no member shall speak more than once on any topic except by the consent of a majority of those members present, or by permission of the chair. The time of the business meeting may be extended beyond thirty minutes by a majority vote of the members present. The scientific session is to begin at 8.30 and shall consist, first, of the report of the Committee on Progress of Pharmacy and, second, of the papers of the evening. While there is to be no time limit to the papers read, yet the discussion of these papers by any member is to be limited to five minutes except by the unanimous consent of those present, this motion to be submitted at the next regular meeting.

After considerable discussion, the motion was carried.

HUGO H. SCHAEFER, *Secretary*.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 24.

PHILADELPHIA, PA., June 1, 1917.

To the Members of the Council:

Motion No. 28 (*Appropriation of $15 to Committee on Patents and Trade Marks*) and *No. 29* (*Election of Members; applications Nos. 124–148* inclusive), have each received a majority of affirmative votes.

Prof. Clair A. Dye has been elected a representative to the Council by the Columbus Branch, succeeding George B. Kauffman, whose term has expired.

Francis E. Bibbins, Secretary of the Indianapolis Branch, writes "I am enclosing a copy of some resolutions which were unanimously adopted by the Indianapolis Branch of the American Pharmaceutical Association."

The resolutions are:

"WHEREAS, Local Branches of the American Pharmaceutical Association have often passed resolutions on or expressed public opinions in regard to matters of national importance, and

"WHEREAS, such resolutions or opinions can be easily misunderstood as representing the action of the whole association

"*Be it Resolved*, that it is the sense of the Indianapolis Branch of the A. Ph. A. that resolutions or opinions of local branches, affecting matters of national importance should not be made public until they have received the endorsement of the Council of the American Pharmaceutical Association, and that moreover Local Branches should not confer nor appoint committees to confer with national organizations or societies as this is a function of the parent association and,

"*Be it Further Resolved*, that copies of these resolutions be sent to the Secretary of the American Pharmaceutical Association and the Secretary of the Council with the request that they be made a special order of business for the meeting of the Council on August 28, 1917."

Charles A. Apmeyer, Secretary of the Cincinnati Branch writes:

"In view of the numerous correspondence regarding the continuance or discontinuance of the Year Book, from the Philadelphia, New York, Washington, D. C., Columbus, O., and other branches, the Cincinnati Branch passed the following resolution:

"*Resolved*, that the Cincinnati Branch submits for consideration to the Council of the A. Ph. A., that in connection with meeting the expense of publishing the Year Book, they consider the feasibility of having voluntary contributions to defray such expenses; or, otherwise, publication on subscription."

The following communication has been received from General Secretary Day:

"I desire to offer a motion for an additional appropriation of $100.00 for the National Drug Trade Conference. This motion is seconded by Professor J. A. Koch and has the approval of the Finance Committee.

The extraordinary conditions created by the war have made necessary an extra meeting of the Conference and this has entailed increased expenditure for traveling expenses of our representatives.

The original appropriation in the budget (see Council Letter No. 10, page 23) was $100.00 and a motion appropriating $100.00 additional was subsequently made (see Council Letter No. 18, motion No. 22). The motion now offered contemplates bringing the total, appropriated for this purpose, up to $300.00 which presumably will be sufficient to meet expenditures for the remainder of the year."

Do you favor above motion? It will be regarded as *Motion No. 30* (*Additional appropriation of $100.00 for National Drug Trade Conference*).

Motion No. 31 (*Election of Members*). The following applications have been presented:

No. 149. G. D. Searle, 215–219 W. Ohio St., Chicago, Ill., rec. by E. G. Eberle and J. W. England.

No. 150. Denver Douglas Newberry, Valdosta, Ga., rec. by P. Lomas and F. V. Eidson.

No. 151. Frank J. Davis, Fayette, Iowa, rec. by G. Scherling and Al. Falkenhainer.

No. 152. Harold Gray, 537 E. 11th, Flat No. 2, Indianapolis, Ind., rec. by E. A. Wildman and F. A. Federer.

No. 153. Edward Valentine Sheel, 554 Vance Ave., Memphis, Tenn., rec. by Ira B. Clark and Wm. B. Day.

No. 154. Henry Frank Wall, U. S. Navy, Dallas, Texas, rec. by J. M. Fletcher and Harry Deathe, Ph.G.

No. 155. Nellie A. Wakeman, 356 Chemistry Bldg., Madison, Wisc., rec. by E. G. Eberle and J. W. England.

No. 156. Gordon Alger Bergy, Morgantown, W. Va., rec. by E. G. Eberle and J. W. England.

No. 157. E. Eleazar, Kaplon, La., rec. by F. C. Godbold and Henry Welich.

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EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.
Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*
Office of Publication, 253 Bourse Building, Philadelphia, Pa.

LEGISLATION.

The Pennsylvania Anti-Narcotic Bill has been passed by the legislature and it is said will unquestionably be signed by the Governor. The bill prohibits the possession, control, dealing in, giving away, delivery, dispensing, administering, prescribing and use, except under a few exceptions, of any narcotic drug. Penalties for violation are high and the bill requires physicians, dentists and veterinarians to keep records of all prescriptions containing narcotic drugs and prohibits them from prescribing for addicts except under the direction of the State Department of Health. Violations are punishable by fines of $1000 and licenses are suspended or revoked. Trafficking in narcotics is subject to a fine of $5000 or five years' imprisonment, or both.

Owing to the delay in furnishing the drug trade with triplicate form official order blanks, the new New York Anti-Narcotic Act, which was to have gone into effect July 1, was not enforced until July 10.

The new Illinois Supervision Plan went into effect July 1 and abolishes all boards and commissions in the State of Illinois that now examine applicants and issue certificates of vocational competency. The powers and duties that have been vested in these boards and commissions will pass to the Department of Registration and Education. The Illinois Board of Pharmacy will be succeeded by a Committee of Pharmacy Examiners, acting under the direction of the new department. Illinois, Iowa, Oregon and North Carolina have been added to the States with prerequisite laws.

A New York law prohibits the advertising, etc., of preparations for venereal disease, etc. The law covers advertising not only in newspapers and by pamphlets, but also every other means of publicity.

The Pennsylvania Board of Pharmacy is at present waiving the age requirement for candidates, assuming that a large number of young pharmacists will be drafted for the Army.

Evidently the department stores are feeling the burden of the delivery system, at any rate there seems to be under contemplation a provision for handling packages of stores by the parcel post department. Postmaster-General Burleson has stated that this matter would be given consideration. It seems to be a timely proposition for druggists to consider. The Commercial Economy Board of the Council of National Defense has started a campaign "to educate people to carry home their own bundles."

The Post Office Department has defined intoxicating liquors within the meaning of the law forbidding the mailing of liquor advertisements into dry territory, as any drink-containing alcohol. The Department also has ruled that the prohibition against advertisements applies to liquor for scientific, sacramental, medicinal, and chemical purposes. This is very apt to give rise to a great many inconveniences in securing alcohol for manufacturing purposes. The Post Office Department has made no statement as to how the law prohibiting liquor advertisements will affect patent medicines. Undoubtedly the question that will govern is whether the medicine is used as a substitute for intoxicating liquors. The Department has issued "Liquor Bulletin No. 2," showing the territory to which it is unlawful to transmit through the mails matter containing advertisements or solicitations for orders for intoxicating liquor. Following are the states wholly affected by the act:

Alabama, Arizona, Arkansas, Colorado, Georgia, Idaho, Iowa, Kansas, Maine, Mississippi, Nebraska, North Carolina, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, Washington and West Virginia.

Those partially affected are California, Connecticut, Delaware, Louisiana, Maryland, Massachusetts, Minnesota, New Hampshire, New York, Ohio and Texas.

The following are affected at future dates:

Alaska, January 1, 1918; Indiana, April 3, 1918; Michigan, April 30, 1918; Montana, December 31, 1918; and Utah, August 1, 1917.

At the time of this writing it is stated, that by the report of the Senate Committee all Spanish War stamps will be virtually reimposed under the Revenue Bill. The committee has also added a new tax of one cent each on bank checks from five dollars up. It is said that the taxes on patent medicines, perfumery, cosmetics and soft drinks had been greatly reduced.

PHARMACY AND THE WAR, AND OTHER ITEMS.

The following resolutions were presented by Dr. Robert A. Hatcher at the recent annual meeting of the American Medical Association, and received favorable action by the House of Delegates:

"The pharmaceutical service in the Army is unsatisfactory because it is not on a modern basis; there is no pharmaceutical corps devoted to the prosecutions of pharmaceutical duties; pharmacists are compelled to enlist as privates without the hope of promotion to commissioned rank as in the dental and veterinary corps. A professionally trained pharmaceutical corps could be made invaluable to the medical corps as assistants both in the field and in hospitals. We earnestly urge the War Department to establish by Congressional enactment a pharmaceutical corps with definite military standing and responsibilities."

An association of senior medical men in Philadelphia was organized last month, and pharmacists were invited to organize and participate with them in matters of mutual interest for War Service. Since then, the Surgeon-General has indicated that the services of medical men beyond the age of enlistment would be acceptable under certain restrictions, thus doing away in part with the purposes for which this association was organized.

The pharmacists of Philadelphia have organized a Pharmaceutical Military Association, the object being to coöperate with the Association of Senior Medical Men for war service, and also, and more particularly, to secure better recognition for pharmacy and pharmacists by the government. George M. Beringer is chairman of the Association, and Robert P. Fischelis is the secretary. It is hoped to outline a plan of systematic action for the aims of the organization and have these activities extended to every state.

The Drug Trade Recruiting Rally of New York City met at 82 Fulton street, June 25th. There was music by the Forty-seventh Regiment Band and snappy talks by Dr. William Jay Schieffelin, chairman, Arthur L. Marvin and Caswell A. Mayo. Dr. Schieffelin, who is a veteran of the Spanish-American War, instanced the changes for the better that have been effected since that conflict, and advised his hearers to enlist in a regiment in which their friends had enrolled.

Honorary President, Geo. H. Schafer, writes commending the editorial of June issue, "The Urgent Need of a Pharmaceutical Corps in the U. S. Army," and states that if his slowly-recovering health will permit, he desires to assist Chairman Hilton and others when the draft of such a bill is ready for presentation to members of Congress. He believes that pharmacy should have recognition on the Advisory Council to the Committee on National Defense.

Senator Owens has proposed an amendment to Senate Bill 1786, which provides for the same rank to medical men in the Army, as in the Navy. Perfectly just, but when will any recognition be given to pharmacists?

Dr. Arthur Dean Bevan, President-elect of the American Medical Association, is credited with a large part of the work undertaken by the A. M. A. in the furtherance of higher medical standards. He has been chairman of the Council on Medical Education since its organization in 1904.

The sixty-seventh annual meeting of the Pharmaceutical Society of Great Britain was held during the week of May 16. The subjects under discussion related largely to conditions brought about by the war and affecting pharmacy and pharmacists.

British pharmacists have many things in common with us, even to the extent of having the government withhold proper recognition of the services of pharmacy and refusing deserved rank to those who serve in this very important department of medical service. Notwithstanding the present conditions, the attendance was gratifying and also the accession to the membership. All the officers of last year were re-elected.

The Philadelphia Association of Retail Druggists have provided by resolution that druggists who may be drawn for service will have their business conducted under the auspices of this association during their enforced absence, should they desire to avail themselves of this assistance.

Thomas H. Potts, after nine years of ser-

vice as secretary of the National Association of Retail Druggists, has resigned this important position to accept the office of vice-president in the Great American Chemical Products Company, with headquarters in Chicago. Undoubtedly some one will be found to carry on the good work of Secretary Potts. His successor will follow a very efficient and esteemed official.

Dr. H. H. Rusby, ex-President of the American Pharmaceutical Association, has sailed for Colombia. The original plans for his trip, which was delayed on account of his recent illness, have been somewhat modified. They contemplated a scientific investigation of the Magdalena River valley, the crossing of the Andes, and the botanical exploration of the headwaters of the Orinoco River in search of new and known varieties of medicinal plants and botanical drugs which can be utilized to increase the supply of such drug sources in the present time of need.

Dr. Rusby hopes to return prior to the 1st of October.

The Chicago Veteran Druggists' Association last month celebrated Jamieson day (June 21), and also the 71st birthday of Wilhelm Bodemann. The occasion was, as usual, a happy event and a number of out-of-town members and visitors assembled with the Chicago fraters around the carnation-decked banquet table.

The Department of Pharmacy of Oregon Agricultural College at Corvallis has been elevated to the rank of a school by the board of reagents of the college. Prof. Adolph Ziefle, for some time connected with the institution, has been named as dean. Professor Ziefle is at present an instructor in the Summer Session of the College of Pharmacy, University of Michigan.

A CORRECTION IN THE ARTICLE BY DR. A. B. LYONS ON THE "DETERMINATION OF ALCOHOL AND WATER IN OFFICIAL ETHER."

Dr. A. B. Lyons writes that in the formula published in the June issue, page 554, the expressions Dif. and Dif.′ were exchanged. The formula should read:

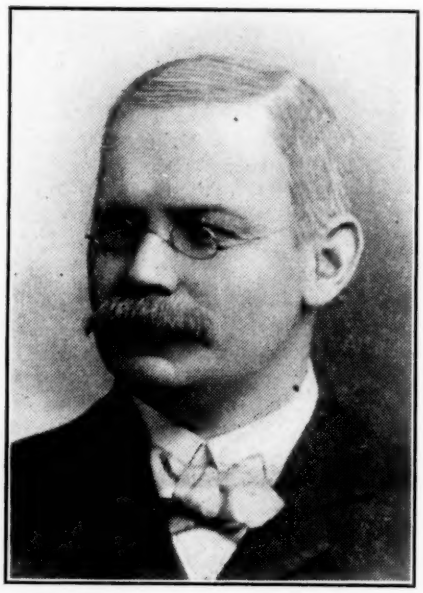
Dif. × 185.5 = Volume percent of water.
Dif.′ × 895 = Volume percent of alcohol.

OBITUARY.

PETER MacEWAN.

Peter MacEwan, for many years the editor of the *Chemist and Druggist* (England), died at his home in London, May 16, at the age of sixty. Mr. MacEwan visited in this country in 1893 and was in attendance at the Chicago meeting of the American Pharmaceutical Association. Few, if any, English pharmacists are or were better known in this country than the deceased.

Mr. MacEwan joined the editorial staff of the *Chemist and Druggist* in 1885, under the late Mr. Wootton, upon the retirement of whom, in 1899, he became editor-in-chief, a post which he filled with distinction and success, until the time of his death. Mr. MacEwan, in addition to his editorial labors, was the author of a long list of scientific papers on pharmaceutical subjects and of several standard works of world-wide currency in the sphere of pharmacy, the most important of these being "The Art of Dispensing," first published in 1888, and "Pharmaceutical Formulas," in 1898, both of which have passed through many editions.



PETER MACEWAN, PH.C., F.C.S.

ALOIS VON ISAKOVICS.

Alois von Isakovics died at his home in Monticello, N. Y., June 5. He was born at Prag, July 21, 1870, the son of a Judge Advocate General of the Austrian Army.

ALOIS VON ISAKOVICS.

In 1886, soon after completing a course in chemistry at the University of Vienna, Mr. von Isakovics came to the United States and located in New York City, where he, in 1889, started the business in which he continued until his demise. In 1902, the Synfleur Scientific Laboratories were moved to Monticello.

The chapter on Essential Oils, Synthetic Perfume and Flavoring Materials in Dr. Allen Rogers' work, "Industrial Chemistry," was contributed by Mr. von Isakovics. He joined the American Pharmaceutical Association in 1905 and also held membership in quite a number of related associations and societies. His wife and four children survive the deceased.

ROBERT KNIGHT SMITHER.

R. K. Smither, of Buffalo, N. Y., president of the National Association of Retail Druggists in 1902, died at his home, May 27th, in his sixty-sixth year.

Mr. Smither was deeply interested in association work. He served as president of the New York State Pharmaceutical Association from 1896 to 1898. In Erie county, N. Y., his activities made him president of the local association and curator of the Buffalo College of Pharmacy. He was one of the framers of the first pharmacy law of New York, and organized the Erie County Board of Pharmacy, serving as its president in 1884.

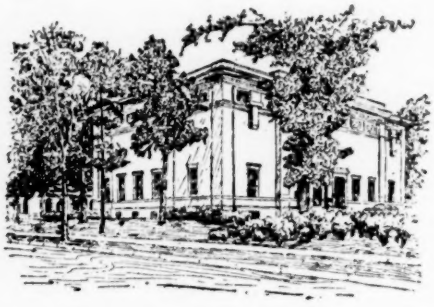
WHEN THE WAR IS OVER

15,000 doctors will be released from Army service and will return home to—the panel system; which is closed to most of them, and is already resented by a large number of the doctors serving under it. And some three millions of soldiers, many of them shattered by wounds or disease or nerve-shock, and many more infected by diseases against which our home defence is precarious or non-existent, will also return to civil life. What will be the result on the public health, and on our medical service? Constructive statesmen are anxiously forecasting the future and devising sweeping changes. It is proposed, for instance, to transform the Local Government Board into a Ministry of Health, and a Ministry of Health of some kind we shall surely have. It is proposed, too, that the panel system, with its capitation-fees, should give place to a salaried medical service; and it is a postulate of all the schemes of which I have heard that the present arrangement should be "overhauled," and a new settlement with practitioners be arranged. It is equally noteworthy that in none of these schemes are pharmacy and pharmacists so much as mentioned. Other "vested interests" are considered, but ours are ignored. The doctors, we may suppose, will be able to look after themselves, and we must do the same to the best of our ability. I commend the subject to the consideration of the Council that meets after the election. The crisis impending dwarfs all our domestic difficulties, and we must prepare to meet it.—A correspondent in *Chemist and Druggist*.

SOCIETIES AND COLLEGES.

GO TO THE INDIANAPOLIS A. PH. A. CONVENTION.

Retail druggists will have an excellent opportunity to enroll for a short course in the "University of Experience" August 27th, when the American Pharmaceutical Association holds its annual convention at Indianapolis.



JOHN HERRON ART INSTITUTE

Not only do such meetings turn pause and ponder into push and progress but they constitute a diversion that offers the best method of getting closer to the vital problems of your profession by getting away from it for a few days. Coöperation spells efficiency. And the benefits that come of rubbing elbows with those whose problems are your problems are not to be reckoned on a dollar and cents basis. By giving what you know and adding to yourself the other man's knowledge, you can do more to assist in the progress of pharmacy than you can by any amount of individual effort.

Pharmacy needs legislation; pharmacy needs recognition; prestige does not spring from the earth-like mushrooms. The worthy name that pharmacy deserves, the honor that should be attached to such a calling can and will come only through the coöperative efforts of thinking leaders in pharmacy. The American Pharmaceutical Association offers the site and scope for a tremendous effort in the right direction. The members, and their attendance at conventions; their voice as one in the affairs of the association are as the individual bricks in a thirty-story building. One is a small object affording neither shelter nor protection, but in numbers they result in mighty structures.

It is particularly fortunate that the A. Ph. A. convention is being held this year at such a central point. Indianapolis is easy of access. Its hotels are plentiful, hospitable and commodious; the rates are reasonable, and the train service to all points is excellent.

The population of Indianapolis is nearly 300,000. It has been referred to by many travelers as one of the most beautiful laid-out cities in the country. It is a city of individual homes with wide level streets and attractive residential districts. Having ample room to grow in all directions there is an absence of crowding. Indianapolis boasts of many beautiful buildings, fine boulevards and parks. Indianapolis is the home of many men

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of national reputation, including Vice-President Marshall, former Vice-President C. W. Fairbanks, and Meredith Nicholson and Booth Tarkington, the novelists. It is also the home of the well-known cartoonist Kin Hubbard, better known to thousands of newspaper readers as Abe Martin.

The famous speedway with the two and one-half mile paved track is one of the interesting spots of the city. Just at this time Fort Benjamin Harrison a few miles out of the city is a busy place, thousands of young men in training there for the important duties of officers in the United States Army.

The Indianapolis convention will be full of possibilities for progressive pharmacists. There can be no question of being able to afford to go. The question is—can one afford to stay away? While A. Ph. A. conventions are "business first" meetings, the local entertainment committee gives assurance of some special features in the way of recreations and the ladies in particular will be provided with a most enjoyable program of events.

TO MEMBERS OF THE SCIENTIFIC SECTION A. PH. A.

The officers of the Scientific Section of the American Pharmaceutical Association are pleased to announce that ample provision will be made at the Indianapolis meeting for such demonstrations as authors of papers may desire to make. The local committee has generously agreed to furnish ordinary chemical glassware, apparatus, reagents, etc. A stereopticon will also be available for showing lantern slides.

The committee recommends that all lengthy papers be presented in abstract in order that there may be ample time for demonstrations and discussion.

Your Secretary requests that titles of papers be sent to him as soon as possible, and that the facilities desired for demonstration or illustration be indicated. The tentative program will be published in the August number of the A. PH. A. JOURNAL, and titles to be included should reach the Secretary by August 1.

Each and every member of the Scientific Section is urged to help make the forthcoming convention one of the best in the history of the A. Ph. A.

W. W. STOCKBERGER, *Secretary.*
Bureau of Plant Industry, U. S. Dept. Agr.,
Washington, D. C.

ANNUAL MEETING OF THE WOMEN'S SECTION, A. PH. A.

The fifth annual meeting of the Women's Section of the American Pharmaceutical Association will be held on the same dates as the sixty-fifth annual meeting of the American Pharmaceutical Association, at Indianapolis, Indiana, August 27th–September 1st, 1917. Headquarters at the Claypool Hotel.

President, Mrs. E. A. Ruddiman, of Nashville, Tennessee, will preside. The local committee is making every effort to provide ample entertainment. A large number of new members have been enrolled. Indications are that the convention in Indianapolis will be well attended and of great interest.

The officers of the Section will be present to welcome the members at the first meeting. An interesting and instructive literary program will be presented. A number of social

features will furnish entertainment for those in attendance. All women who are members of the American Pharmaceutical Association, also all women of the families of members of the A. Ph. A. are most cordially urged to be present.

Kindly write the Secretary, Mrs. Jean M'Kee Kenaston, Bonesteel, South Dakota, at your earliest convenience, giving name and address that your name be listed with the membership of the Women's Section, A. Ph. A.

AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

The following communications have passed between the War Department and the American Conference of Pharmaceutical Faculties, and are of interest:

His Excellency, May 1, 1917.
PRESIDENT WOODROW WILSON,
Washington, D. C.

Mr. President: The Executive Committee of the American Conference of Pharmaceutical Faculties, representing forty-three leading Colleges of Pharmacy of the United States, has authorized me to inform you that the services of the schools belonging to this Conference are at your command. This organization wishes to render to the country any and every possible service. Some of the special services which these schools can render are suggested below.

1. The manufacture of pharmaceutical preparations, official or non-official, in such quantities as the Government needs.

2. The microscopical and chemical examination of purchases of crude drugs, for the purpose of identification, and the detection of adulterations.

3. The physiological and chemical standardization of medicinal products.

4. The manufacture of medicinal synthetics.

5. The chemical, microscopical, and bacteriological examination of food-stuffs.

6. The supplying of crude medicinal plants, such as digitalis and belladonna, which are now on hand, or are now growing in our drug plant gardens. The latter will be available this Fall.

7. The growing of crude drugs upon a larger scale than is now attempted, and the supplying of information or of trained men to those who wish to engage in the cultivation of medicinal plants.

Respectfully yours,
RUFUS A. LYMAN,
President of American Conference of Pharmaceutical Faculties.

WAR DEPARTMENT,
OFFICE OF THE SURGEON-GENERAL,
Washington, May 16, 1917.

PROFESSOR RUFUS A. LYMAN,
President, American Conference of Pharmaceutical Faculties, University of Nebraska, Lincoln, Neb.

Dear Sir: The Surgeon-General directs me to acknowledge the receipt of your letter of the 1st inst., addressed to the President, tendering the good offices of your Conference to the United States, and so far as the Army is concerned to express the appreciatiou of the Department for the same.

The Medical Department will not hesitate to avail itself of your patriotic offer as occasion therefor arises and expects at an early date to take advantage of so much of it as relates to the microscopical and chemical examination of drugs purchased.

Very sincerely,
H. E. FISHER,
Lt. Colonel, Medical Corps.
B. B. S.

AMERICAN ASSOCIATION OF PHARMACEUTICAL CHEMISTS.

The American Association of Pharmaceutical Chemists, at its Atlantic City convention during the second week of June, passed resolutions against the use of heroin in drug preparations. The members tendered their full resources and personal services to the Government in the war emergency. French Lick Springs was selected for next year's convention. Officers were elected as follows:

President, Dr. W. C. Abbott, Chicago; *First Vice-President,* Henry Hoonan, New York; *Second Vice-President,* G. C. Pratt, Philadelphia; *Secretary-Treasurer,* Dr. C. H. Searle, Chicago; *Directors*—J. W. Haynie, Columbus; B. L. Maltbie, Newark; F. L. M. Nason, Boston; and E. S. Holt, Cedar Rapids, Iowa.

NEW OFFICERS ELECTED BY AMERICAN MEDICAL ASSOCIATION.

At the closing session of the American Medical Association in New York City, Chicago was chosen as the next meeting place, and the following officers were elected:

President, Dr. Arthur D. Bevan, Chicago; *First Vice-President,* Dr. E. H. Bradford, Boston; *Second Vice-President,* Dr. John McMillan, United States Public Health Service; *Third Vice-President,* Dr. Lawrence

Litchfield, Pittsburgh; *Fourth Vice-President*, Major Holman Taylor, U. S. A.; *Secretary*, Dr. Alexander A. Craig, Philadelphia; *Treasurer*, Dr. W. A. Pusey, Chicago; *Chairman House of Delegates*, Dr. Hubert Work, Pueblo, Colo.

DR. CHARLES H. MAYO, ROCHESTER.

Dr. Charles Horace Mayo is the president of this year. The degree of Doctor of Science was conferred upon him by Princeton University. Dr. Mayo is the joint endower and director with his brother of the Mayo Foundation for Medical Education and Research; winner of the Nobel prize for his success in suturing blood vessels and transferring living organs from one animal to another; one of the best technicians in his art.

STATE PHARMACEUTICAL ASSOCIATIONS.

The reports from various state associations indicate a general good attendance at their annual meetings, and all of them evidence more than usual interest. This was in a way stimulated by the trade conditions and the contemplated taxation by Congress of many important articles entering into dispensing and manufacturing and also of finished products. The indications are at this time that instead of the stamp tax on patent medicines, the manufacturers will be assessed. The tax on alcohol will certainly be increased. Loyalty was pledged the government. There was considerable discussion of the question of having representation on the Advisory Commission to the National Council for Defense, and the organization of a pharmaceutical corps in the U. S. Army. Practically every association endorsed both propositions. The usual number of papers were presented, many of them dealing with educational measures and subjects relating to the Pharmacopoeia and National Formulary. The accessions to the membership averaged fairly well; in some instances special inducements were offered or stronger efforts made, resulting in larger additions, while in a few instances extraordinary efforts put forth last year showed in somewhat fewer additions this year. Arkansas, Mississippi and Tennessee held joint sessions and also separate meeting for transaction of their association affairs and election of officers. It is contemplated to hold a tri-state meeting in 1919. Next year the respective conventions will be held in their home states.

To these general statements, only a little more mention, than naming the new officers, will be made.

ARKANSAS.

Arkansas participated in the Tri-State meeting held in Memphis, Tenn., June 12–14. The sessions were presided over by E. V. Sheelly, of Memphis, president of the Tri-State Association, who was assisted by President W. R. Appleton, of the Arkansas Association, Vice-President C. F. Waites of the Mississippi Association, and President D. J. Kuhn, of the Tennessee Association. H. B. Mayer and T. A. Robinson, both of Memphis, were, respectively, secretary and treasurer of the joint organization.

The Arkansas Association of Pharmacists elected the following officers: *President*, Dr. Jesse Hodges, of Little Rock; *Vice-Presidents*, W. C. Hogan, of Atkins, and J. E. Paris, of Paragould; *Secretary-Treasurer*, Miss Mary A. Fein, of Little Rock; and *Chairman of the Executive Committee*, Bruce Greeson, of Conway.

Little Rock was selected as the 1918 meeting place.

CALIFORNIA.

The California Pharmaceutical Association elected the following officers: *President*, W. B. Philip, of Oakland; *Vice-Presidents*, F. A. Gardner, of Riverside; P. T. Hahman, of Santa Rosa; *Secretary-Treasurer*, E. A. Henderson, of Los Angeles; *Members of the Execu-*

tive Committee, O. V. McCracken, of Berkeley; K. B. Bowerman, of San Francisco; W. R. Dickinson, of Los Angeles; F. B. Taylor, of Oakland; J. A. Sanford, of Stockton; E. G. Binz, of Los Angeles; and D. R. Rees, of San Francisco.

San Diego was selected as the place for the 1918 meeting.

DELAWARE.

The Delaware Pharmaceutical Society held their convention in Wilmington. The following are the new officers: *President*, H. C. Culver, of Middletown; *Vice-Presidents*, G. W. Rhoades, of Newark; H. K. McDaniel, of Dover, and R. M. Cauffman, of Seaford; *Secretary*, Miss Nora V. Brendle, of Wilmington; *Treasurer*, O. C. Draper, of Wilmington; *Members of the Executive Committee*, J. T. Challenger, of New Castle, N. B. Danforth, of Wilmington; H. C. Culver, of Middletown; W. H. Chambers, of Lewes, and C. B. Swayne, of Smyrna.

FLORIDA.

The Florida Pharmaceutical Association convened at Atlantic Beach, Jacksonville, June 13th. The matter of providing a tri-state meeting with Georgia and Alabama was discussed.

Officers were elected as follows: *President*, W. A. Rawls, of Pensacola; *Vice-Presidents*, W. G. Perry, of Miami; J. S. Jewett, of Lakeland, and J. R. Johnson, of Monticello; *Secretary-Treasurer*, J. H. Haughton, of Palatka.

Tampa was selected as the meeting place for next year.

ILLINOIS.

The Illinois Pharmaceutical Association met at Springfield, June 19–22. One of the addresses before the convention was "Compulsory Health Insurance and What It Means to the Pharmacist," by Dr. J. H. Beal. The officers elected are as follows: *President*, Byron Armstrong, of Jacksonville; *Vice-Presidents*, J. Robert Phillips, of Springfield; Frank J. Dubsky, of Chicago, and John C. Wheatcroft, of Grayville; *Secretary*, W. B. Day, of Chicago, and *Treasurer*, Chris. Garver, of Bloomington.

INDIANA.

The Indiana Pharmaceutical Association convened at Lake Wawasee, June 19–21. Among other interesting addresses, Dr. J. N. Hurty spoke on "The Pharmacist and What He Can do to Advance the Public Health." The officers elected, follow: *President*, William F. Rudder, of Salem; *Vice-Presidents*, Dwight Hawks, of Goshen; J. Lovett, of Huntington, and F. M. Best, of Lafayette; *Secretary*, William F. Werner, of Indianapolis; *Treasurer*, Frank H. Carter, of Indianapolis; *Member of the Executive Committee*, Bruno Knoefel, of New Albany.

IOWA.

Iowa Pharmaceutical Association convened in Dubuque, June 18th. A subject of considerable consideration was the success of the prerequisite in Iowa. The following officers were elected: *President*, Thomas Watts, of Holstein; *Vice-Presidents*, J. B. Becker, of Dubuque; George Judisch, of Ames, and P. W. Dowds, of Guthrie Center; *Treasurer*, J. M. Lindley, of Winfield; *Secretary*, Al. Falkenhainer, of Algona. Fort Dodge was selected as the place of meeting in February, 1918.

KANSAS.

Kansas Pharmaceutical Association met at Topeka, May 15–17. A state law was proposed for automatically making every registered pharmacist a member of the Association.

Officers were elected as follows: *President*, W. S. Henrion, of Wichita; *Vice-Presidents*, J. F. Tilford, of Wichita, and Joseph DeMain, of Macksville; *Secretary*, D. von Riesen, of Marysville (re-elected); *Assistant Secretary*, J. M. Brunt, of Topeka (re-elected); *Treasurer*, John Schmitter, of Gypsum (re-elected); *Chairman of the Legislative Committee*, Harry Dick, of Lawrence; *Librarian*, L. E. Sayre, of Lawrence.

Kansas City was selected as the 1918 meeting place.

MICHIGAN.

The Michigan Pharmaceutical Association convened at Grand Rapids, June 19–21, and enlisted 117 new members. Wilhelm Bodemann spoke of telephone matters, while Otto E. Bruder advocated propaganda of N. F. and U. S. P. preparations. The officers elect are: *President*, P. A. Snowman, of Lapeer; *Vice-Presidents*, Dwight Miller, of Union City; Axel Durchman, of Hancock; *Secretary* Wheaton and *Treasurer* Faulkener were re-elected; *Members of the Executive Committeee*, J. A. Skinner, of Cedar Springs, and D. G. Look, of Lowell; *Trustees of the Prescott Memorial Fund*, L. A. Seltzer, C. F. Mann and J. W. T. Knox, all of Detroit.

MISSISSIPPI.

The meeting of Mississippi Pharmaceutical Association was held in Memphis, Tenn. On account of the absence of President G. C. Kendall, Professor H. M. Faser, an ex-president of the Association, presided. The Association provided a fund for the maintenance of a French war orphan.

Officers were elected as follows: *President*, J. A. Beard, of McComb; *Vice-Presidents*, L. C. Brown, of Rosedale; W. J. Cox, of Batesville; *Secretary-Treasurer*, Miss Flora Scarborough, of Laurel; *Members of the Executive Committee*, G. C. Kendall, of Meridian, W. M. Gillespie, of Charleston, and R. E. Ousley, of Kosciusko.

The 1918 meeting will be held at Gulfport.

MISSOURI.

The Missouri Pharmaceutical Association met in Elms Hotel, Excelsior Springs, June 11–16. In recognition of the twenty-five years of service of Secretary Whelpley, which also corresponded to the years of married life of Dr. and Mrs. H. M. Whelpley, the Association presented them with an elegant silver service.

Officers for 1917–18 were elected as follows: *President*, Henry D. Llewellyn, Mexico; *First Vice-President*, Minnie M. Whitney, Kansas City; *Second Vice-President*, A. C. Smith, Carrollton; *Third Vice-President*, F. E. Long, St. Joseph; *Permanent Secretary*, H. M. Whelpley, St. Louis; *Treasurer*, Wm. Mittelbach, Boonville; *Assistant Secretary*, C. H. McDonald, Rocky Comfort; *Local Secretary*, R. S. Ford, Excelsior Springs; *Council*—A. M. Howard (*chairman*), Excelsior Springs; Dr. Otto F. Claus (*vice-chairman*), St. Louis; Prof. D. V. Whitney (*secretary*), Kansas City; O. J. Cloughly, St. Louis; John T. Davis, Hannibal.

The 1918 meeting of the Missouri Ph. A. will be held at the Elms Hotel, Excelsior Springs, June 11, 12, 13, and 14.

NEW JERSEY.

The New Jersey Pharmaceutical Association held their sessions in Hotel Breslin, Lake Hopatcong, June 12–15. Prof. Henry Kraemer gave an illustrated lecture on "The Use of the Microscope in the Drug Store Laboratory." Professors F. J. Wulling and H. V. Arny were elected to honorary membership in the Association. The following are the new officers: *President*, Adolph F. Marquier, of Newark; *Vice-Presidents*, George M. Beringer, Jr., of Camden, and Leon A. Taylor, of Lakewood; *Secretary*, Jeannot Hostmann, of Hoboken; *Treasurer*, Edgar R. Sparks, of Burlington. The next meeting will be held at Spring Lake, and Daniel H. Hills was elected local secretary.

NEW YORK.

The New York Pharmaceutical Association met at Richfield Springs, June 19–22. Professional recognition of pharmacists received much consideration, and also discussion of state and federal narcotic laws. A donation was made to the American Red Cross Society.

The following were elected officers for the ensuing year: *President*, Richard A. Austin, of Cairo; *Vice-Presidents*, Henry B. Smith, of Brooklyn; Orrin O. Biglow, of Richfield Springs; Robert S. Lehman, of New York City; *Secretary*, Edward S. Dawson, of Syracuse; *Treasurer*, Frank Richardson, of Cambridge.

The next annual convention is to be held at the Catskill Mountain House.

PENNSYLVANIA.

The Pennsylvania Pharmaceutical Association held their sessions in Hotel Schenley, Pittsburgh. The coöperation of the Association was offered to the State in mobilizing the Nation's resources. Matters of historical interest were offered to the American Pharmaceutical Association. Revision of the U. S. Patent and Trade Mark Laws was advised. A quarterly publication is to be issued by the Association. President F. J. Wulling, of the American Pharmaceutical Association, was elected an honorary member. The prize for the best paper at last convention was awarded to Joseph L. Lemberger, for his paper on "The Cultivation of Castor Oil Plant as a Commercial Possibility." The following officers were elected: *President*, W. H. Knoepfel, of Scranton; *Vice-Presidents*, Peter G. Walter, of Pittsburgh, and G. W. Shoemaker, of Allentown; *Treasurer*, F. H. E. Gleim, of Lebanon; *Secretary*, Robert P. Fischelis, of Philadelphia; *Assistant Secretary*, Dr. A. F. Judd, of Pittsburgh; *Local Secretary*, Louis Frank, of Wilkes-Barre.

TENNESSEE.

Tennessee Pharmaceutical Association met in Memphis, and this city also entertained the Arkansas and Mississippi Associations. Provisions were made for contributing to the support of two French war orphans for one year.

The Association elected the following officers: *President*, H. B. Mayer, of Memphis; *Vice-Presidents*, J. G. Ingles, of South Pittsburgh, and H. C. Mason, of Smithfield; *Secretary*, T. J. Shannon, of Sharon; *Treasurer*, J. B. Sand, of Nashville.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of the change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESSES SINCE MAY 18, 1917.

MERNER, P. M.,
From 6 S. Frederick St., Oelwein, Ia.
To 137 W. 16th St., New York, N. Y.

MCNEILL, WM. H.,
From River and Straight Sts., Paterson, N. J.
To Main and Jefferson, Passaic, N. J.

MCKELLIPS, C. M.,
From Northwestern Coll. of Pharm. and Dentistry, Portland, Ore.
To care North Pacific Coll., Portland, Ore.

ORTIZ, A., DR.
From Havana, Cuba.
To Residence Unknown.

DONNET, JOHN S.,
From 1225 Hull St., Baltimore, Md.
To 1442 E. Fort Ave., Baltimore, Md.

GARDNER, H, W.,
From 1547 Capouse Ave., Scranton, Pa.
To 214 Kipp Ave., Hasbrouck Heights, N. J.

FINLEY, L. B.,
From care Bur. of Med. and Surgery, Navy Dept., Washington, D. C.,
To Headquarters, Gendarmerie d'Haiti, Port au Prince, Haiti.

HENSGE, WM.,
From 10525 Wilbur Ave., Cleveland, Ohio.
To 10516 Wilbur Ave., Cleveland, Ohio.

JUDD, A. F.,
From Pittsburgh Coll. of Pharm., Pittsburgh, Pa.
To Bluff and Pride, Pittsburgh, Pa.

RAUSCHFLEISCH, E. O.,
From 13419 Euclid Ave., Cleveland, Ohio.
To 13427 Euclid Ave., Cleveland, Ohio.

BLOOMFIELD, I. B.,
From 1638 N. 8th St., Philadelphia, Pa.
To 15th and Potter Sts., Chester, Pa.

DECEASED SINCE MAY 18, 1917.

GORDON, F. T., Philadelphia, Pa.
PEARSON, J. F., Annapolis, Md.

BOOK NOTICES AND REVIEWS.

Abstract of the Census of Manufacturers. Department of Commerce, Bureau of the Census, Washington. The Abstract of the Census of Manufacturers has just been issued by the Bureau of the Census. This inquiry, which related to the calendar year 1914, was made in 1915, and the primary or fundamental data derived from it, together with some details as to kinds and quantities of the various classes of products, were issued some time ago in the form of several series of press summaries which were published, in whole or in part, in many newspapers and periodicals. The Abstract presents, in convenient form, with an alphabetical index, all the information that will be needed by the great majority of persons who have use for the manufacturers statistics. It gives, for 340 separate manufacturing industries, statistics relating to number, size, and character of ownership of establishments, and states in which located; proprietors, officials, salaried employees, and wage earners, classified according to sex and, in the case of wage earners, according to whether 16 years of age or over, or under that age; salaries and wages paid; power used; fuel consumed; cost of materials; value of products; quantities of principal products; and various other items. Statistics somewhat similar in scope but in less detail are given,

with reference to all industries combined, for each state and geographic division and for each of the leading 130 cities.

The Abstract, which is issued in the form of a 722-page volume $9^1/_2$ by $6^1/_4$ inches in size, bound in cloth, is not for free distribution, but may be obtained by purchase from the Superintendent of Documents, Government Printing Office, at 65 cents per copy.

Pituitary Standardization. Studies from the Research Laboratory, Parke, Davis, & Co. Reprint No. 103, 1916. By H. C. Hamilton and L. W. Rowe.

Proceedings of the Thirty-Eighth Annual Meeting of the Missouri Pharmaceutical Association, held at Excelsior Springs, June 13–16, 1916.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service for the seven days ended June 6, 1917.

Phar. F. L. Brown. Relieved at Reedy Island Quarantine Station and proceed to Philadelphia, Pa., for duty. May 31, 1917.

Phar. J. V. LaGrange. Granted 1 day's leave of absence, June 5, 1917. June 4, 1917.

Phar. F. S. Goodman. Proceed from Tampa Bay Quarnatine Station not oftener than once each week on official business. June 11, 1917.

Epidemiologist A. W. Freeman. Granted 3 days' leave of absence enroute under orders of June 4, 1917. June 8, 1917.

Sanitary Inspector William Pryor. Proceed to San Francisco Quarantine Station to observe methods of fumigating by cyanide gas. June 11, 1917.

PROMOTION.

Phar. William G. Beucler. Promoted and appointed Pharmacist of the Second Class, effective December 27, 1916. June 11, 1917.

PHARMACISTS IN THE R. A. M. C.

The Pharmaceutical Society is to be commended on the action taken regarding the utilization of pharmacists, as such, in the R. A. M. C. The military authorities' reply is not, however, to be regarded as altogether satisfactory, for, on reference to *The Pharmaceutical Journal*, we frequently find the statement that "recruiting for the R. A. M. C. is closed." It is common knowledge that pharmaceutical work in our Army is frequently allotted to persons who possess no statutory civil qualification in pharmacy. As to the accepting only of men with a low medical classification—agreed that fighting men are needed urgently—I have yet to learn that any medical man classified for general service has, on this account, been sent as a combatant and his medical work handed over to a person not on the medical register. I am convinced that this question of the proper use of pharmacists, with a corresponding status in our army medical scheme, is one of the matters which should *not* be left until "after the war." It is to be hoped that the new Pharmaceutical Council will continue to press the Army authorities on the subject. Don't expect the Pharmaceutical Society to work a miracle; but let every pharmacist use his influence, when and where there is opportunity, with Members of Parliament and others to prove the justice of our claims for recognition. If H. M. Prison Commissioners demand a pharmaceutical qualification of the dispenser compounding medicines for inmates of convict prisons, surely our Army authroities must eventually agree that sick and wounded soldiers are, at any rate, *equally* deserving of the best pharmaceutical service available.

Geo. W. Gibson, in *Chemist and Druggist.*

London, N. W. 1, May 7, 1917.

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, $4.00; Canada, $4.35; foreign countries, $4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, Easton, Pa., or 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

Requests for Back and Missing Numbers: Requests for back and missing numbers should be sent to the Editor. Claims will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from date of issue. Notice of change of address should give old and new address.

Contributions: The JOURNAL accepts no responsibility for the opinion of its contributors. Contributions should be sent to the Editor; use only one side of the sheet for writing, and double-space the lines. Articles are accepted for publication on condition that they are contributed solely to this JOURNAL; and "all papers presented to the Association and its Branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by consent of the Committee on Publication." (By-Laws, Chapter X, Article 11.)

Reprints: Authors may obtain reprints of the Eschenbach Printing Company, Easton, Pa., at the prices attached to the proof sent them, provided the order is received with the returned proof. The prices are also given on this page. Otherwise type is distributed as soon as the JOURNAL is printed.

Advertisements: Communications relating to advertising should be sent to the Editor. Forms close on the first of each month, and copy should be in by the fifteenth of the month preceding date of issue, to receive proof. Date of issue—the fifteenth of the month. Advertising rates sent on request.

Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the JOURNAL. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

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SHOW YOUR INTEREST IN PHARMACY.

For several months past a request has appeared in the JOURNAL that members indicate whether they desire a cut of the insignia of the Association with name "Member" above, as appended, for their Prescription Blanks. A sufficient number of members have signified their interest and therefore these cuts may now be had by addressing the JOURNAL Office as below.

The cost of single type-cut, including postage, is fifteen cents; when two are ordered at the same time, twenty-eight cents. **The charge is simply to cover cost and postage.**

THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

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